Java 7 Programming Fundamentals and OO Essentials for Developers New to OO

Java Programming Foundation Training Series

Course: TT2120-J7: Java 7 Programming Fundamentals and OO Essentials for Developers New to OO (Such as C, COBOL & Mainframe Developers)

Duration: 5 days

Skill Level: Introductory level

Focus: Java 7 Applications (also offered for Java 6 and Java 8)

Audience: Experienced Programmers with little or no Object-Oriented background (such as C, COBOL, Mainframe, 4GL developers, etc.)

Hands-On Format: This hands-on class is approximately 50/50 lab to lecture ratio, combining engaging lecture, demos, group activities and discussions with comprehensive machine-based practical programming labs and project work.

Delivery Format: We're flexible! This course is available for onsite private classroom presentation, or live online virtual presentation, or can be presented in a combined delivery learning solution. Please also visit our Public Schedule for open-enrollment course dates.

Customizable: This course may be easily tailored to target your specific training skills objectives, tools of choice and learning goals.

Java 7 Programming Fundamentals and OO Essentials for Developers New to OO (Such as C, COBOL and Mainframe Developers) is a five-day, comprehensive hands-on Java training course geared for developers who have little or no prior working knowledge of object-oriented programming languages. Throughout the course students learn the best practices for writing great object-oriented programs in Java 7, using sound development techniques, new improved features for better performance, and new capabilities for addressing rapid application development. Special emphasis is placed on object oriented concepts and best practices.

Course Objectives: What You'll Learn

Students who attend this course will leave this course armed with the required skills to develop solid object-oriented applications written in Java, using sound coding techniques and best coding practices. Geared for developers with prior development experience in languages such as COBOL, PowerBuilder, Visual Basic or other mainframe or 4Gl/non-DD language, this course will teach students everything they need to become productive in essential Java programming. Special emphasis is placed on object-oriented concepts and practices throughout the entire course.

Working within in an engaging, hands-on learning environment, guided by our expert Java practitioner, students will learn to:

- Understand what OO programming is and what the advantages of OO are in today's world
- Work with objects, classes, and OO implementations
- Understand the basic concepts of OO such as encapsulation, inheritance, polymorphism, and abstraction
- Understand not only the fundamentals of the Java language, but also it’s importance, uses, strengths and weaknesses
- Understand the basics of the Java language and how it relates to OO programming and the Object Model
- Learn to use Java exception handling and logging features
- Understand and use classes, inheritance and polymorphism
- Understand and use collections, generics, autoboxing, and enumerations
- Use the JDBC API for database access
- Use Java for networking and communication applications
- Work with annotations
- Take advantage of the Java tooling that is available with the programming environment being used in the class

Need different skills or topics? If your team requires different topics or tools, additional skills or custom approach, this course may be easily adjusted to accommodate. We offer additional Java, JEE and Web programming courses which may be blended with this course for a track that best suits your development objectives.

Hands-on Learning: This course is about 50% hands-on lab and 50% lecture, with extensive programming exercises designed to reinforce fundamental Java development skills and concepts learned in the lessons.

Students will code numerous Java examples to reinforce the major concepts covered in this course. The courses will increase in complexity as more sophisticated techniques are introduced. Our courses include ample materials and labs to ensure all students are either appropriately challenged, or assisted, at all times – no matter their skill level.

Audience: Who Should Attend

This is an introductory-level course, designed for experienced developers who wish to get up and running with Java, or who need to reinforce sound object oriented Java coding practices.

Related Courses: Pre-Requisites & Learning Path

Take Instead: We offer other courses that provide different levels of knowledge or focus:

- For those with prior OO experience: TT2100 Java 7 Programming for OO Experienced Developers

Take After: We offer a variety of introductory through advanced Java, JEE and Java web development, programming, design and mobile development courses and learning tracks.

Some recommended follow-on courses include:
Session  Java 7: A First Look
Lesson Using the JDK
• Setting Up Environment
• Locating Class Files
• Compiling Package Classes
• Source and Class Files
• Java Applications

Lesson The Eclipse Paradigm
• Workbench and Workspace
• Views
• Editors
• Perspectives
• Projects

Lesson Java Code and Debug Tooling
• Java Editing Assistance
• The Debug Perspective
• Breakpoints and the Debug View
• Debug Mode
• Refactoring Overview

Lesson Writing a Simple Class
• Classes in Java™
• Class Modifiers and Types
• Class Instance Variables
• Primitives vs. Object References
• Creating Objects

Lesson The Java™ Platform
• Java Platforms
• Lifecycle of a Java Program
• Responsibilities of JVM
• Documentation and Code Reuse

Session  OO Concepts
Lesson  Object-Oriented Programming
• Real-World Objects
• Classes and Objects
• Object Behavior
• Methods and Messages

Lesson  Inheritance, Abstraction, and Polymorphism
• Encapsulation

Session  Advanced Java Programming
Lesson  Additonal Methods to the Class
• Passing Parameters Into Methods
• Returning a Value From a Method
• Overloaded Methods
• Constructors
• Optimizing Constructor Usage

Lesson Language Statements
• Operators
• Comparison and Logical Operators
• Looping
• Continue and Break Statements
• The switch Statement

Lesson  Using Strings
• Strings
• String Methods
• String Equality
• StringBuffer
• StringBuilder

Lesson  Specializing in a Subclass
• Extending a Class
• Casting
• The Object Class
• Default Constructor
• Implicit Constructor Chaining

Session  Essential Java Programming
Lesson  Fields and Variables
• Instance vs. Local Variables: Usage Differences
• Data Types
• Default Values
• Block Scoping Rules
• Final and Static Fields
• Static Methods

Lesson  Using Arrays
• Arrays

Session  Advanced Java™ Programming
Lesson  Getting Started with Java™
• Inheritance
• Method Overriding
• Polymorphism

Lesson  Java™ Packages and Visibility
• Accessing the Array
• Multidimensional Arrays
• Copying Arrays

Lesson  Inheritance and Polymorphism
• Polymorphism: The Subclasses
• Upcasting vs. Downcasting
• Calling Superclass Methods From Subclass
• The final Keyword

Lesson  Interfaces and Abstract Classes
• Separating Capability from Implementation
• Abstract Classes
• Implementing an Interface
• Abstract Classes vs. Interfaces

Lesson  Exceptions
• Exception Architecture
• Java 7 - Handling Multiple Exceptions
• Java 7 – Automatic Closure of Resources
• Creating Your Own Exceptions
• Throwing Exceptions
• Checked vs. Unchecked Exceptions

Session  Java™ Developer's Toolbox
Lesson  Utility Classes
• Wrapper Classes
• The Number Class
• Random Numbers
• The Date Class

Lesson  Collections
• Characterizing Collections
• Collection Interface Hierarchy

Please contact us for recommended next steps tailored to your longer term education, project, role or web development objectives.
Lesson Generics
- Generics and Subtyping
- Bounded Wildcards
- Generic Methods
- Legacy Calls To Generics
- When Generics Should Be Used

Lesson Autoboxing, Enhanced for Loop and Varargs
- Autoboxing/Unboxing
- The for-each() Loop
- For-each Loop Restrictions
- Variable Arguments

Session Java™ Application Development

Lesson Java Logging
- Java Logging Framework
- The Logger Class
- Global Configuration
- Programmatic Handlers
- Logging Security & Performance

Need courseware? This course is fully customizable, and also available for license with complete support for qualified organizations. To learn more about our Courseware Services and Licensing options, please contact us at Courseware@triveratech.com for details.

Student Materials: What You’ll Receive
Our robust course materials include much more than a simple slideshow presentation handout. Student materials include a comprehensive hard-copy course manual, complete with detailed course notes, detailed lab manuals and workbooks, code samples, software tutorials, diagrams and current reference materials, all directly related to the course at hand, indexed for ease of use. Step-by-step lab instructions, software tutorials and project descriptions are clearly illustrated and commented for maximum learning.

Set Up Made Simple!
Our mission is to ensure a smooth start to your course with minimum set up burden for your team or firm. We offer several course set up options such a Manual Course Set Up, Remote Lab Server Access or Pre-Loaded Equipment to help meet that goal. Please inquire for details on requirements and costs.

Focused, Skills-Driven Training | Maximizing Your Training Time and Value, while Reducing Risk
Our training programs are designed to be skills-driven, focused events, targeted to deliver the true skills you need to succeed in your projects and role. We’ll work with you to ensure that your valuable training time and dollar is truly maximized. If your team requires more or less advanced materials or additional or custom topics, this course may be easily adjusted to accommodate. We offer and can blend on a wide variety of surrounding and supporting tools and elements to build out a truly robust educational experience, for you, your team, or your entire organization.

Please contact us for details about our Extended Education Programs that support, surround, supplement or extend your learning initiatives such as
- Collaborative mentoring for your team
- Pre-and post-training assessments help place learners on the right path
- Mentored, comprehensive case-studies can be woven into your training programs, complete with guided work and instructor interaction
- Guided or self-paced projects, homework and exams
- Virtual lab hours and/or constant Mentor access
- Role-basic, Topic-based or Goal-based corporate Training Roadmap and Learning Paths development, rollout and support
- Skills-focused custom New Hire Training Programs and team Reskilling initiatives such as our new Java OnRamp Program
- Learning Management or Vendor Management Services for your organization

Plus many additional, flexible learning modules, initiatives and programs that can be delivered across a variety of subjects and modalities, completely tailored for your organization.

Why Choose Trivera Technologies?
Whether you’re a manager choosing a training provider or course to bring to your team, an instructor looking for reliable, solid course materials, or a student looking for an exciting, targeted training class to attend or to recommend to your colleagues - Our single focus is to make YOUR training event or experience a success. Here’s why choosing Trivera Technologies as your Java and JEE development training, mentoring and courseware resource takes the risk right out of your decision making process...  
- Our ‘skills-driven’ courses are efficient, focused, current and comprehensive. Our experts target exactly the skills your team needs to
succeed in their jobs, projects or roles, rather than taking a ‘laundry-list’ approach to training, which can often result in overtraining, course overload or overwhelmed students. We’ll work with you to define what it is you need to accomplish, and create the right program, training to those goals. Students of all skill levels will be able to hit the ground running with their new skills right after class ends, since the program was correctly designed from the start.

- **Our content is always updated and ready to go.** Our dedicated course development team keeps our training content, courses and student resources completely updated with the latest skills, industry trends and software editions to ensure your team is always getting the most current information, techniques and skills available.

- **Every training event is Unique and Important!** The Trivera team treats every delivery engagement like a first-run, important event, not simply a staffing assignment. For every class we deliver, our team works closely with yours to ensure that your course runs smoothly from start to finish, and that there are no surprises in the classroom for you, your students or the instructors. Our experts work with you to choose the right topics and courses that align with your true skills goals, tuning as needed. We align the best all-around trainer to fit your exact needs – not just whoever happens to be ‘on the bench’. We offer pre-reading, quizzes and support resources to help assess and prepare your team for the training, so we can best tune the training and maximize their time in the classroom. We’ll ensure that your classroom is set up and ready to go prior to course start. Throughout the course delivery, our instructors constantly evaluate the class delivery and students, tuning topics, activities, discussions and labs as needed to ensure all student skill levels and needs are targeted. All activities, data and results are documented and shared with your firm so you have a complete picture of the course and its results, throughout the course delivery, and afterwards. Post training support is also included for your students to address any future related questions.

- **We wholly-own our course content, giving Trivera flexibility & quality above the rest.** Our course materials are owned by our company and fully customizable at little or no cost. Dozens of training firms and independent instructors purchase and use our course materials, and hire us for training support as well. As a result, our courseware is subject to very stringent quality requirements. Not only will your organization benefit from our own technical team’s technical expertise, but also from the feedback of hundreds of students and trainers using these materials, worldwide, on a regular basis. This unique fact guarantees that our materials are not only robust and interesting, but also technically correct, current and of the highest quality and usability.

- **We bring years of practical, current experience into the classroom and content.** Our dynamic instructors and course authors are also skilled Java, JEE / J2EE, Net, SOA, and web services developers, architects and security-oriented professionals, currently active in their fields. This real-world experience translates directly to your classroom, and into our course materials.

- **We’re Java & JEE authors and industry speakers.** Our team was selected to write the online JEE, EJB, EJB CMP-CMR and Web Services Tutorial Series for IBM developerWorks®. These are the same instructors who train our classes and author the courseware. Most of our trainers/consultants have also authored additional articles on web services, EJB, Struts, JEE and advanced Java topics, and are recognized speakers and presenters on the industry technical seminar circuit. Our team is comprised on several successful published authors. Members of our team have written or contributed to: Eclipse Kick Start, Mastering Eclipse; Professional Jakarta Struts; Using Java Tools for Extreme Programming; Mastering Resin; Mastering TomCat and others.

- **Our prices and services are guaranteed.** We stand behind our courses and instructors 100%. We’ll match or beat any pricing for similar services, any time. Whether you’re a stakeholder organizing your firm’s educational services, a student in our live or virtual classroom or a trainer using our materials to educate your own client or team — **Our core mission is to make YOU a success in the classroom.**

► For More Information

**Need dedicated training?** All courses can be brought onsite or produced online / virtually for a private presentation, customized to suit your unique requirements or goals. Please contact us for course details and Special Discount Offers. Our pricing is always cost effective, and our services are guaranteed. Please also visit our **Public Training Schedule** for available open enrollment dates that may apply. Please contact Training@triveratech.com for more information, pricing and special offers.

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For more information about our training services, collaborative mentoring services, courseware licensing options, courseware development services, public course schedule, training management services, partner and reseller programs, or to see our complete list of course offerings please visit us at www.triveratech.com, email Info@triveratech.com or call 609.953.1515.