



Course Outline

TT2120-6: Java 6 Programming Fundamentals for Non-OO Developers (C, COBOL, 4GL)

Duration: 5 days

Skill Level: Introductory

Focus: Java6 Applications

Audience: Programmers with little or no Object-Oriented background (C, COBOL, Mainframe, 4GL)

Hands-On: Extensive Hands-On Programming Labs; Expert lecture combined with open discussions and high-Level demonstrations

Language / Tools: Java 6 delivered with most IDEs: RAD; JDeveloper, Eclipse, WTP, MyEclipse and more

Delivery Format: Available for onsite private classroom presentation, or live online / virtual presentation

Customizable: Yes

Java 6 Programming Fundamentals for Non-OO Developers (C, COBOL, 4GL, etc) is a five-day, comprehensive hands-on workshop 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 6, 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 **Java 6 Programming Fundamentals for Non-OO Developers** 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-OO languages, 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.

New content, relative to Java 6, includes new collections features as well as integrated functionality for processing XML and working with web services.

Working in a dynamic, hands-on learning environment attendees will learn to:

- Understand not only the fundamentals of the Java language, but also it's importance, uses, strengths and weaknesses
- Understand what OO programming is and what the advantages of OO are in today's world
- Understand the basics of the Java language and how it relates to OO programming and the Object Model
- Learn to use Java multi-threading and exception handling features
- Understand and use classes, inheritance and polymorphism
- Understand and use collections, generics, autoboxing, and enumerations including new Java 6 features and capabilities

- Use the JDBC API for database access
- Use Java for networking and communication applications
- Work with annotations
- Working with XML and Web Services in Java using JAXP, JAXB, and security
- Optionally, learn to develop GUI applications using Swing

Throughout the five-day course, students will be led through a series of progressively advanced topics, where each topic consists of lecture, group discussion, comprehensive hands-on lab exercises, and lab review.

If your team requires more advanced Java materials or custom topics, this course may be easily adjusted to accommodate. We offer many additional advanced Java classes which may be blended with this course for a track that best suits your development objectives.

► Audience & Pre-requisites: Who Should Attend

This is a **beginner** level Java course, designed for experienced developers who wish to get up and running with Java, or who need to reinforce sound Java coding practices, immediately.

Geared for experienced programmers, attendees should have a working knowledge of developing software applications.

► Related Courses – Suggested Learning Path

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



- Developers with prior OO development background, who wish to learn basic Java and essential GUI skills, may wish to take **TT2100 Java Programming Fundamentals for OO Developers**
- Programmers preparing for non-GUI, server side / J2EE web development work might want to consider **TT5140 Java Programming Essentials for Server-Side OO Developers** which combines basic Java and essential J2EE (Servlets/JSPs) content.

Take After: We offer a variety of introductory through advanced development, project management, engineering, architecture and design courses.

- Students wishing to extend their newly learned OO foundation skills should consider **TT1130 Object-Oriented Analysis & Design Using UML 2.x**
- Students needing an essential J2EE follow up may take **TT5100 Mastering J2EE Web Applications** (Servlets/JSPs, Tags, JDBC, Security, etc.)
- Essential Java or basic J2EE training
- Java Security topics
- Agile or test-driven development topics
- Service-Oriented Analysis and Design
- Web Services – Intro through Advanced
- AJAX, XML or other Web Development topics
- Java EE topics: EJB3.0; Spring; Hibernate; Design Patterns & more.

Please contact us for recommended next steps tailored to your longer term education, project or development objectives.

► Experiential Learning: Hands-On Labs

This class is “technology-centric”, designed to train attendees in essential Java development skills, coupling the most current, effective techniques with the soundest coding practices.

As a basic programming class, this course provides **over 30 basic and challenges labs** for students to work through during the class. This workshop is about **50% hands-on lab and 50% lecture**. Throughout the course students will be led through a series of progressively advanced topics, where each topic consists of lecture, group discussion, comprehensive hands-on lab exercises, and lab review. Multiple detailed lab exercises are laced throughout the course, designed to reinforce fundamental skills and concepts learned in the lessons.

At the end of each lesson, developers will be tested with a set of review questions to ensure that he/she has fully understands that topic

Workshop Topics Covered

Session: Object Oriented Analysis and Design Defined

- Introduction to OO & OO Concepts
- Why We need the OO Approach
- Object Oriented Concepts

Session: Overview of the UML

- What is UML?
- Exploring Diagrams:
- Use Case Diagram
- Class Diagram
- Package Diagram
- Component Diagram
- Collaboration Diagram
- Sequence Diagram
- State Diagram
- Activity Diagram

Session: Object Oriented Software Development Processes

- Overview: What is the Software Development Process?
- Iterative Process Frameworks
- The Unified Software Development Process
- The Rational Unified Process (RUP)
- Use Case Driven, Architecture

Centric, Iterative and Incremental

Session: Working with Java

- Using the JDK
- Writing a Simple Class
- The Java Platform

Session: Getting Started with Java

- Adding Methods to the Class
- Language Statements
- Using Strings
- Specializing in a Subclass

Session: Essential Java Programming

- Fields and Variables
- Using Arrays
- Static Methods and Fields
- Java Packages

Session: Advanced Java Programming

- Inheritance and Polymorphism
- Interfaces and Abstract Classes
- Exceptions
- Multithreading
-

Session: Java Developer’s Toolbox

- Utility Classes
- Vector and Hashtable

- Collections
- Generics
- Autoboxing and Varargs
- Enumerations
- Overview of Java GUIs
- Inner Classes
- Java I/O
- Annotations

Session: XML and Web Services in Java

- XML and Web Services Overview
- Processing XML using JAXP
- Binding XML using JAXB
- Securing XML

NOTE: For clients using the Java6 edition of this course - Additional Java 6 specific topics include integrated new Collection and File I/O options. Please see outline TT2100-6 for details.

LABS: There are over 30 hands-on lab exercises and challenges laced throughout this course. Please ask us for lab details.



► Delivery Environment & LoadNGo™ Classroom Set Up

Although this training is skills-centric, this course can be delivered using a variety of IDE combinations, including but not limited to: Eclipse / Ganymede, MyEclipse, IBM Rational Application Developer, Oracle JDeveloper or other IDEs.

Our lab guides are complete with software-specific instructions, screen shots and detailed tutorials for using the software you select. In most cases we can easily port our classes to run in the environment of your choosing.

For course deliveries or virtual presentation using **open-source** (non-license restricted) tools, we'll provide our unique **LoadNGo Instant Classroom Kit**, which enables students to run the entire course off of a DVD that hosts the entire course set up software, labs, and other pertinent useful educational resources, whitepapers and more. You only need to provide the hardware and appropriate O/S, and we'll do the rest. No installation needed. **Great for secure environments.** Minimum set up burden for your team or firm, with maximum results for your students.

No matter which set up option or software your firm requires, we're pleased to provide a detailed set up guide for all private or on-site courses, and as much assistance as you require to prepare your students or classroom for the course. Our support personnel and instructors can be contacted for any advice you may require to prepare your classroom and/or students for attendance.

► 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, code samples, diagrams and current reference materials, all directly related to the course at hand, indexed for ease of use. Step-by-step lab instructions and project descriptions are clearly illustrated and commented for maximum learning and ease of use.

In addition to everything students need for the course, the *LoadNGo Instant Classroom Kit* described above also includes of workshop labs and solutions; non-restricted workshop software, APIs, documentation, technical education papers, and specifications pertinent to the training course.

Our course kits are designed to serve as an excellent and useful reference set, long after we leave your classroom.

► Optional Pre / Post-Testing & Skills Assessment

We work with you to ensure that your resources are well spent. Through our basic pre-testing, we ensure your team is up to the challenges that this course offers. We will work with you to come up with the best solution to ensure your needs are met, whether we customize the material, or devise a different educational path to prepare for this course.

► Why Work With Us?

- **Our courses are focused - no "fluff" included.** We offer more than a "laundry list" approach to teaching. All lessons have clear objectives, are fundamental to learning core defensive programming practices, and are reinforced by hands-on code labs and solid practical examples. Each lesson has performance driven objectives that ensure students will learn technologies and skills core to fundamental Java and OO programming – nothing more, nothing less. Students will learn the importance of developing well-designed applications.
- **Our materials are comprehensive, and current.** Each lesson has performance driven objectives that ensure students will learn technologies and hands-on skills core to Java development – nothing more, nothing less. Progressive labs are designed in such a way that students get a firm grasp on fundamental skills while they work toward building a complete solution. All lessons have clear objectives, are fundamental to learning core programming practices, and are reinforced by hands-on code labs and solid practical examples.
- **Our materials are robust.** Our comprehensive manuals include not only a hard copy of the course presentation, but also detailed reference notes, pertinent diagrams and charts, current lists of suggested online resources and articles, and often technical tutorials or white papers geared to the topics at hand. Hands-on courses also include our unique materials for each student, complete with course set up, software, and a multitude of learning resources that complement the course.
- **We provide a solid foundation.** Students will learn how to code, use (and reuse!) essential Java development skills and concepts properly, using best coding practices, grounding them for advanced curriculum, and will be prepared for designing and implementing solutions.
- **We foster "Learning by Doing".** Progressive labs are designed in such a way that students get a firm grasp on fundamental skills while they work toward defending a complete application. All labs are take-home, and all solution code is presented in an easy to use self-study format for future use and review.
- **True content ownership gives us flexibility & quality above the rest.** These course materials are wholly-owned by our authoring team and fully customizable, at little or no cost, to help you best meet your learning objectives. We have many dedicated experts available worldwide to instruct your team, and can provide services around the globe, either locally or virtually. We work closely with you to produce the most effective events and materials for your team, within your desired timeframe and budget.



- **We bring years of practical, current experience into the classroom and content.** Our instructors and course authors are also skilled mentors, Java, J2EE, .Net, SOA, and web services developers, architects and security-oriented professionals. We believe that learning, using and maintaining solid software execution and delivery methods are as important as gaining sharp coding skills. Best Practices for software development and execution, beyond technical coding skills, are enforced throughout all of our courses and discussions. Our team brings this extensive experience into every classroom and engagement.
- **We're skills-centric.** Although our team has extensive experience using a variety of tools and solutions, our core content is “technology-centric”. Our aim is to teach you the best skills and solutions out there – not to sell you software from any particular vendor.
- **Our course authors and instructors are Java & J2EE authors and industry speakers.** Our team was selected to write the online *J2EE, EJB, EJB CMP-CMR and Web Services Tutorial Series for IBM developerWorks®* (www.ibm.com) 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, J2EE 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.*

► **For Additional Information**

