

<p>LN029</p>	<h2 style="text-align: center;">Java™ 5.0 Programming with Eclipse</h2> <p><i>This intensive course provides a solid introduction to the Java 5.0 programming language and development environment. Using Eclipse as the host IDE, attendees are shown how to program in Java and to make use of the plug-in technology for professional-quality software development.</i></p> <p><i>The course addresses best-practice object-oriented programming with Java; UML notation, creating graphical user interfaces (GUI); exception and error handling; file input/output (I/O); multi-threading; database access with JDBC and the new Java 5.0 language features. We pay particular attention to testing and test development using the JUnit testing frame. Eclipse is used throughout the course to support the numerous exercises. Attendees receive a personal copy of “Java in a Nutshell”.</i></p>	
	<p>Course Topics:</p> <ul style="list-style-type: none"> ▪ OO Technology ▪ Java Environment ▪ Java Basics ▪ Classes in Java ▪ Arrays and Strings ▪ Applying Inheritance ▪ Writing Java Applets ▪ More of the Java API ▪ Abstract Windowing Toolkit ▪ Exceptions ▪ Collection classes ▪ Threads ▪ I/O Streams ▪ Testing with JUnit ▪ Persistence and JDBC ▪ Generic and Enumerated types ▪ Annotations ▪ Autoboxing ▪ Eclipse IDE ▪ Eclipse configuration ▪ Eclipse Perspectives ▪ Patterns in UML and Java 	<p>Audience:</p> <ul style="list-style-type: none"> ▪ Programmers new to the Java Language ▪ Programmers converting from a non-OO environment ▪ Designers needing a review of OO and Java technology <p>Prerequisites:</p> <ul style="list-style-type: none"> ▪ Some 3GL Programming experience ▪ An understanding of object-oriented concepts will be useful but is not essential

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Course Outline:**OO Technology**

- 📁 Objects and the Design
- 📁 Reuse / Inheritance
- 📁 Object Types
- 📁 Relating to Java
- 📁 The UML

Java Environment

- 📁 Java run-time Environment
- 📁 Developing Applications
- 📁 Classes, Files, Directories
- 📁 Java VM Performance

Eclipse

- 📁 Eclipse overview and tutorial
- 📁 Eclipse Perspectives and Tools
- 📁 Configuring Eclipse
- 📁 Templates
- 📁 Eclipse plug-in technology

Java Basics

- 📁 Variables, Data Types, Statements, Flow Control
- 📁 Simple Output
- 📁 Autoboxing
- 📁 Enumerated types

Arrays and Strings

- 📁 Defining arrays
- 📁 String Objects and Methods
- 📁 String Conversion

Patterns

- 📁 Introduction to Patterns
- 📁 Patterns in UML and Java

Object Orientation in Java

- 📁 Instantiating a Class
- 📁 Member Access
- 📁 Method Overloading
- 📁 Constructors
- 📁 Encapsulation
- 📁 Inheritance
- 📁 Polymorphism
- 📁 Varargs

Applying Inheritance

- 📁 Derivation Syntax
- 📁 Effects of Inheritance
- 📁 Overriding Methods
- 📁 Abstract Classes
- 📁 Interfaces
- 📁 Packages
- 📁 Generic Types

Exceptions

- 📁 Java Exceptions throw, try catch, finally and throws
- 📁 Exception Types

Abstract Windowing Toolkit and Events

- 📁 Components
- 📁 Action Events
- 📁 Adapter Classes
- 📁 Inner Classes
- 📁 Text Components
- 📁 Using the AWT and Swing
- 📁 Frames and Menus
- 📁 Standalone Windows Applications

Writing Java Applets

- 📁 Applet Characteristics and Security
- 📁 Graphics, Fonts, Lines, Shapes, and Colour
- 📁 Events and Java Event Models

Java Testing

- 📁 JUnit overview
- 📁 Test Strategy
- 📁 Delivering Testable code

More of the Java API

- 📁 Object Class
- 📁 Collections
- 📁 Wrapper Classes
- 📁 Extensions to Java API
- 📁 Documentation and Jar files

I/O Streams

- 📁 Input Stream and Output Stream
- 📁 Memory and Filter Streams
- 📁 Buffered I/O
- 📁 Reader and Writer
- 📁 Serialization

Threads

- 📁 Class Threads and Thread Synchronization

JDBC

- 📁 Database
- 📁 Persistence
- 📁 Java and databases
- 📁 Introduction to JDO and Hibernate