



# JAVA COURSES

2013

<b>JAVA 500: Core JAVA</b>	
<b>Java Programming Overview</b>	
	Applications
	Compiler
	Class Libraries
<b>Object-Oriented programming with JAVA</b>	
	Encapsulation, inheritance and polymorphism
	Object Oriented Analysis and design
	Designing an OO application
	Modelling Object Structure (UML)
	Object creation
	Aggregation & composition
	More...
<b>Language Fundamentals</b>	
	Variables
	Arrays
	Casting and Boxing
	Methods and Invocation
	Loops and statements
	Exception handling
	Abstract classes and interfaces
	Packages and modifiers
	Generics and collection APIs
	Developing new classes
	Compiling and debugging
	More...
<b>Networking</b>	
	Fundamentals
	Different Networking Models
	Client-Server Scenario
	Socket programming
	Protocols
	More....
<b>Threading</b>	
	Fundamentals

Thread states
Synchronization
More...
<b>RMI (Remote Method Invocation)</b>
Fundamentals
Design and Architecture
Remote Objects and Interfaces
Dynamic Loading
More...
<b>File System I/O</b>
Java streams overview
Streams, Readers and Writers
Catching and throwing exceptions
Formatting text
Reading and writing files
Creating, deleting and renaming files
Obtaining directory and file information
More...
<b>GUI development</b>
GUI widgets
Event-driven programming
Portable windowing library
Java Foundation Classes (JFC)
Swing components development
Swing components and layout managers
Dialogs and message boxes
Event handling
Registering event handlers
Inner and top-level classes
More...
<b>Database Connectivity (JDBC)</b>
JDBC Overview
JDBC API
Database drivers
Connecting to a database
SQL statements

Processing results
Stored procedures
More...
<b>Development Tools</b>
Java Development Kit (JDK)
Compiler (javac)
Javadoc utility
Java Archive (JAR) utility
Java Integrated Development Environments (IDEs)
More...

## JAVA 501: Web development with JAVA

### Web development Overview

Fundamentals  
n-tier architecture  
More...

### Servlets

Servlets integration with web application architecture  
Servlet development environment  
Avoiding common servlet pitfalls  
Java Servlet API  
Servlet life cycle methods  
Accessing servlet environment variables  
Web forms development for inputs  
Retrieving form data in the servlet  
Extending servlets with Java Database Connectivity  
Database access with Servlets  
Database results formatting  
More...

### State Management

Cookies overview  
Sending and retrieving cookies  
Session Overview  
Managing application state with sessions  
Storing common application data  
More...

### Java Server Pages (JSP)

JSP Overview  
JSP scriptlets, expressions and declarations  
Communicating using built-in JSPserver objects  
JSP Expression Language (EL)  
State Managements  
More...

### JSP and Servlet Architectures

JavaBeans fundamentals  
JSP and JavaBeans integration  
Business Logic and presentation separation  
Promoting object reuse  
Servlet and JSP design patterns

More...
<b>Custom Tags</b>
Tag Extension mechanism
JSP Standard Tag Library (JSTL)
Developing custom tags
More...

## JAVA 502: Web Services development with JAVA

### Web services Overview

Fundamentals

SOA integration architecture

SOA with Web services

HTTP, XML, SOAP, WSDL, JSON

UDDI (Universal Description, Discovery and Integration)

More...

### XML

XML syntax and namespaces

XML with schema

JABX

XML for Java bindings

XML Schemas (XSDs)

More...

### SOAP Messages & WSDL

SOAP message structure

SOAP in web services

Operations, messages and exceptions

WSDL document

More...

### Designing a Web Service

Service endpoint

Protocol of message interchange

Flexibility and extensibility

Web Services Interoperability (WSI) standards

Web Service end point using JAX-WS

Deployment

Optimization

More...

### Plain Old Java Objects(POJOs) as Web Services

POJO overview

Code-first VS WSDL-first

Parallel Web Services

Multi-Threaded Web Services

Generating WSDL

Deployment

More...

<b>Consuming Web Service (JAVA Client)</b>
Client code generation from WSDL
JAX-WS and generated code customisation
Synchronous, asynchronous and polling services
More...
<b>For Mobile and AJAX clients</b>
Stateless processing of XML requests
RESTful web services using JAX-RS
Client-side interactivity
Lightweight clients
Web services invocation with the Dispatch API
Processing XML messages
More...
<b>Web Service Security</b>
Fundamentals
Authentication and Authorization
Limiting access to web services and methods
Providing authentication info to web services
Message-level security
Transport security vs. end-to-end security
More...



## JAVA 503: Enterprise Applications development with JAVA

### EE development Overview

Fundamentals

Overview: Development with Java EE

### Spring Framework

Fundamentals

Spring architecture

Identifying Spring application components

Defining the n-tier application architecture

Inversion of Control (IoC) & Dependency Injection (DI)

IoC and DI Fundamentals

Spring bean factory

Delegating object creation to the Spring bean factory

Controlling bean creation

More...

### Aspect-Oriented Programming (AOP)

Fundamentals

Transparently applying common functionality

Advice, pointcuts and advisors

Configuration with Autoproxying

AspectJ style AOP

AspectJ pointcut expression language

AspectJ style with annotations

More...

### Data-Access Tier with Spring

Overview

JDBC Templates

Data access with JDBC templates

Streamlining code with JDBC templates

Structuring queries and callbacks

Data Access Layer abstraction

Data Access Object (DAO) support

Platform agnostic exceptions

Transactions

Java EE transaction

Spring transaction manager

Declaring transaction policies with XML and annotations

More...

<b>Spring MVC</b>	
	Overview
	Spring MVC architecture
	Controller and View
	Mapping requests to controllers with annotations
	Commands
	Processing commands, form submissions and wizards
	AJAX Controllers
	RESTfull-style URLs implementation
	More...
<b>Hibernate</b>	
	Overview
	Hibernate integration
	Data access with O/R mapping
	Hibernate architecture
	Deploying and configuring Hibernate
	Developing the persistent class
	Storing and retrieving Java objects
	More...
<b>Complex Object Relationships management</b>	
	Hibernate Session
	Thread-safe session object
	Object states(transient, persistent, detached)
	Mapping collections
	Persisting and retrieving collections
	Preserving collection order
	One-to-many and many-to-many relationships
	Association life cycle
	Relationships Inheritance
	Mapping inheritance relationships
	More...
<b>Data-Access Optimization</b>	
	Hibernate Query Language (HQL)
	Named queries
	Structure with named queries
	HQL with native SQL
	More...