



Java Fullstack Course Syllabus:

Hours	Module Name
4	▪ Introduction to Java ▪ Introduction of IDE (Net Beans or Eclipse). How to configure and create java application with IDE. • Java in Server Environments • The Java Community Process
10	▪ Inheritance and Polymorphism • Immutability • Subclassing • Overloading methods • Variable argument methods ▪ Classes in Java • Access modifiers: private, protected and public • Method overriding • Constructor overloading • The instanceof operator • Virtual method invocation • Polymorphism • Casting object references • Overriding Object methods

TecTutor

120 W. Golf Road Suite 106, Schaumburg, IL 60195

Phone: 224-347-1312

Email: info@tectutor.com | URL: www.tectutor.com



7	Advanced Class Design • Abstract classes and type generalization • The static and final modifiers • Field modifier best practices • The Singleton design pattern • Designing abstract classes • Nested classes • Enumerated types Inheritance with Java Interfaces • Object composition and method delegation • Implementing multiple interfaces • The DAO design pattern String processing • String manipulation with StringBuilder and StringBuffer • Essential String methods • Text parsing in Java • Input processing with Scanner • Text output and formatting • Regular expressions with the Pattern and Matcher classes
8	Generics and Collections • Generic classes and type parameters • Type inference (diamond) • Collections and generics • List, set and Map • Stack and Deque Inner and Anonymous class

TecTutor

120 W. Golf Road Suite 106, Schaumburg, IL 60195

Phone: 224-347-1312

Email: info@tectutor.com | URL: www.tectutor.com



7	Exceptions and Assertions • Best practices using exceptions • Assertions I/O Fundamentals • I/O using Java • Reading the console input stream • Writing to the console • Using I/O Streams • Chaining I/O Streams • Channel I/O • Reading and writing objects using Serialization File I/O with NIO 2 • The Path interface • The Files class • Directory and File operations • Managing file system attributes • Reading, writing, and creating files • Watching for file system changes
---	--

5	Threading • Operating system task scheduling • Recognizing multithreaded environments • Creating multi-threaded solutions • Sharing data across threads • Synchronization and Deadlock • Immutable objects • Thread-safe collections • Executors and ThreadPools to concurrently schedule tasks.
---	--

TecTutor

120 W. Golf Road Suite 106, Schaumburg, IL 60195

Phone: 224-347-1312

Email: info@tectutor.com | URL: www.tectutor.com



7	Database Application with JDBC • Layout of the JDBC API • JDBC drivers • Queries and results • PreparedStatement and CallableStatement • Transactions • RowSet 1.1 RowSetProvider and RowSetFactory • The DAO Pattern and JDBC Localization and Internationalization • Advantages of localization • Defining locale • Read and set locale using the Locale object • Resource bundles • Format messages, dates and numbers
10	JUNIT • Introduction to JUNIT • Why testing? • Junit with Eclipse • Assert methods and Annotation • Parameterized Test • Test Suite DevOps Part 1 • What is DevOps • Evolution of DevOps • Agile Methodology • Why DevOps

TecTutor

120 W. Golf Road Suite 106, Schaumburg, IL 60195

Phone: 224-347-1312

Email: info@tectutor.com | URL: www.tectutor.com



	• Agile vs DevOps • DevOps Principles • DevOps Lifecycle • DevOps Tools • Continuous Integration and Delivery pipeline • Git And Maven • How to configure maven • Small example to run java project using maven • Introduction To Git • Version Control • Repositories and Branches • Working Locally with Git • Case Study and assessment of Core Java
7	HTML & CSS • Introduction to HTML • Tables • Forms • Frames • Style and Div • Styles and Style Sheets • Formatting with CSS • Links and Lists
5	JavaScript & JQuery • JavaScript basic elements • JavaScript Objects • JavaScript Validations • JavaScript Regular Expression • Introduction to JQuery and Syntax • JQuery Selectors • JQuery Methods & Events • JQuery Effects and User Interface Library

TecTutor

120 W. Golf Road Suite 106, Schaumburg, IL 60195

Phone: 224-347-1312

Email: info@tectutor.com | URL: www.tectutor.com



1	• JSON • JSON - Introduction • JSON - Evaluates to JavaScript Objects • JSON Syntax • JSON Data • Object From String • JSON Http Request
4	Survey of Java EE Technologies • Describe the different Java platforms and versions • Describe the needs of enterprise applications • Introduce the Java EE APIs and services • Introducing Applications Servers • Enterprise Modules Enterprise Application Architecture • Design Patterns • Model View Controller • Synchronous and Asynchronous communication • Network Topologies and Clustering • Layering (client, presentation, service, integration, persistence) Web Technology Overview • Describe the role of web components in a Java EE application • Define the HTTP request-response model • Compare Java servlets, JSP, and JSF • Brief introduction to technologies not covered in detail Servlets Overview • Handling Form data and redirection
4	Developing Servlets • Describe the servlet API • Servlet configuration through annotations and deployment descriptors • Use the request and response APIs • Servlets as controllers • Working with database • Using Cookies and handling session in servlet • Implementing Listeners and Annotations in Servlet

TecTutor

120 W. Golf Road Suite 106, Schaumburg, IL 60195

Phone: 224-347-1312

Email: info@tectutor.com | URL: www.tectutor.com



5	Working with Java Server Pages • Implicit Objects and Scripting Element in JSP • Object persistence and EL • Understanding the benefits of beans • Creating beans • Installing beans classes on server • Accessing bean properties • Understanding the benefits of MVC • Using RequestDispatcher to implement MVC • Forwarding request from servlets to JSP Handling relative URL • JSTL • Hands-on exercise
15	Angular • ES6 & TypeScript • Introduction To Angular Framework • Essentials Of Angular • Templates, Style and Directives • Pipes, Service and DI • Template-Driven and Reactive Forms • Components & Routing • Http Requests / Observables
6	Hibernate • Introduction to Hibernate. • Define Persistence • Identify the problems with Object/Relational mismatch • Describe Alternatives for persistence management • Define Object / Relational Mapping (ORM) in detail • Write a Simple Hibernate program • Understand the Architecture • Use Hibernate API
10	Mappings • Basic O/R mapping • Collection mapping • Association mapping

TecTutor

120 W. Golf Road Suite 106, Schaumburg, IL 60195

Phone: 224-347-1312

Email: info@tectutor.com | URL: www.tectutor.com



	• Inheritance mapping Querying • Query with Hibernate Query Language (HQL) • Use Criteria Queries • Create queries with Native SQL Hibernate 3 with annotations
8	Spring Spring Essentials • Why and what is Spring • Inversion of Control and Dependency Injection • Introduction to Bean Factory • Building your first Spring application Spring Container Concepts • Bean factory • Application context • Bean wiring • Managing bean lifecycle • Event handling
8	Spring and AOP • Overview of AOP Spring and Data Access • Using JDBC with Spring • Using Exception Handling support of Spring • Data access with ORM support

TecTutor

120 W. Golf Road Suite 106, Schaumburg, IL 60195

Phone: 224-347-1312

Email: info@tectutor.com | URL: www.tectutor.com



15	Spring Web Framework • General architecture • Controllers • Handle mappings • Handlers • View resolver • Data bindings Integration Support with other Frameworks • Hibernate Integration with Spring • Case Study and Assessment
15	Spring Boot • What is Spring Boot • How Spring Boot works • Developing Web application using Spring Boot • Spring Boot integration with Spring Data Spring Rest • Spring MVC REST workflow • Spring REST introduction • Lifecycle of request in spring REST • Why REST Controller? • HTTP methods in REST • HTTP status code • HTTP Request Mapping • Restful URLs • Annotations in REST • ResponseEntity Object • Cross-origin Resource Sharing (CORS) • Rest Testing • Spring RestTemplate methods Exception handling in REST at controller level and application level

TecTutor

120 W. Golf Road Suite 106, Schaumburg, IL 60195

Phone: 224-347-1312

Email: info@tectutor.com | URL: www.tectutor.com



20	Hand on Project on Angular, Spring and Hibernate
5	Microservices • Monolithic Architecture • SOA • Microservices Architecture • Spring Cloud config • Creating a configuration server
5	Microservices • Monolithic Architecture • SOA • Microservices Architecture • Spring Cloud config • Creating a configuration server • Locating Service at runtime using Service Discovery • Client side load balancing with Ribbon • Eureka Naming Server • Fault tolerance • Routing your Microservices Traffic
4	DevOps Part 2 • Working Remotely with GIT Jenkins • Introduction To CI • Jenkins Introduction • Creating Job in Jenkins • Adding plugin in Jenkins • Creating Job with Maven and GIT Sonar • Introduction To Sonar

TecTutor

120 W. Golf Road Suite 106, Schaumburg, IL 60195

Phone: 224-347-1312

Email: info@tectutor.com | URL: www.tectutor.com



	Analyzing Java code with Sonar Integrating Jenkins with Sonar
--	--

TecTutor

120 W. Golf Road Suite 106, Schaumburg, IL 60195

Phone: 224-347-1312

Email: info@tectutor.com | URL: www.tectutor.com

