

Diploma in Java Technology

Duration: 3 Months (90-100 Hrs)

Prerequisites

- Knowledge of C Programming.

Module I: Core Java

1. Introduction to Java

- History of Java
- Features of Java

2. Overview of Java

- OOP's Concept
- Data types and Variables
- Control Structures
- Strings, Arrays

3. Objects and Classes

- Object, Classes and Methods
- Method Overloading
- Constructors
- Object class

4. Inheritance

- Types of Inheritance
- Method Overriding
- Dynamic method dispatch

5. Packages and Interfaces

- Defining Packages
- Extending Interfaces

6. Exception Handling

- Fundamentals of Exception Handling
- Exception types
- Try and Catch and finally
- Throw, throws
- Custom Exception

7. Inner Class and Wrapper classes

- Inner Classes
- Static Nested Classes
- Wrapper Classes
- Anonymous Inner Classes

8. String Handling

- Creating Strings

- String handling methods
- String Buffer and String Builder

9. Input and Output in Java

- Byte streams & Character streams
- File
- Serialization

10. Collections Framework

- Collection Interfaces and Classes
- Iterators
- Comparators

11. Multithreading

- Basics of java thread
- The Thread Scheduler
- Naming a thread, Daemon thread
- Perform single / multiple task by multiple threads
- Major Thread Concepts
- Garbage Collection

12. Reflection API

- Overview of Reflection
- Use of newInstance() method and determining the class Object
- Accessing private method or member from outside the class

13. Lambda Built-in Functional Interfaces

- Use primitive versions of functional Interface
- java.util.function package
- Use binary versions of functional Interface
- Use the UnaryOperator Interface

Module II: J2EE

1. Java Swing

- Swing Introduction,
- Swing Controls,
- Swing Event classes,
- Event Listeners,
- Event Adapters,
- LayoutManagers

2. JDBC

- Common JDBC components
- Steps to connect to the database using MySQL and oracle database

- Types of JDBC statements - statements, preparedStatement and callableStatement
- Transactions management in JDBC
- CRUD operation using preparedStatement
- Calling Stored procedure using callableStatement
- How Result Set Works in JDBC

3. **SERVLET**

- Servlet - environment setup
- ServletConfig and ServletContext parameters
- Servlet life cycle
- Servlet Attribute And Servlet Parameters
- Exploring Deployment Descriptor (web.xml)
- Session Tracking In Servlet
- Servlet Filter
- Types Of Filter
- Servlet Filter Mapping In Web.Xml,
- Servlet-listener
- Various Servlet Listener
- Servlet Listener Configuration
- servlet-security

- Details about MVC architecture
- Practical exposure on MVC using JSP and Servlet.

4. **JSP 2.X**

- JSP - Overview
- JSP - Life Cycle
- JSP API
- JSP-Scripting Elements
- JSP- Directive Elements
- Types Of JSP Scopes
- JSP - Custom Tags
- JSP-Implicit Objects
- JSP - Standard Tag Library (JSTL)
- JSP - Expression Language (EL)
- JSP - Exception Handling

Module III: Hibernate

- Introduction to hibernate
- Hibernate Architecture
- Object relational mapping (ORM)
- Features of hibernate
- Hibernate configuration file
- Using JPA and Hibernate annotations
- Hibernate object states(Transient, Persistent and Detached Objects)
- CRUD operation in Hibernate
- Annotation
- Hibernate Mapping XML Configuration
- Hibernate Catching
- Transactions management in Hibernate
- BLOB Object

Module III: Spring

- Introduction to spring framework
 - Spring Bean lifecycle
 - Understanding IOC and Dependency Injection
 - Working with Bean Factory and Application Context.
 - Working with multiple configuration files
 - Advanced XML Dependency Injection
 - Dependency Injection
 - Injecting Inner Beans
 - Injecting Collection Type
 - Annotation-Based Dependency Injection
 - Spring Autowiring by Type, By Name
1. **Aspect-Oriented Programming (AOP) with Spring**
 - Introduction on Spring AOP
 - Aspect-oriented programming concepts
 - Integration with Spring IoC
 - AspectJ APIs and annotations
 2. **Data Access and JDBC with Spring**
 - Introduction to Spring JDBC
 - How Spring integrates with existing data access technologies
 - Spring JDBC APIs
 - Data Access Exception hierarchy
 - Result Transformations
 - Implementing Row Mapper
 3. **Transactions management in spring.**
 - Spring Declarative Transactions Management
 - Spring Programmatic transaction management
 4. **Hibernate with Spring**
 5. **Working with Spring MVC**
 - Introduction to Spring MVC framework
 - Creating many Spring MVC Web Applications
 - Writing an annotation based controller class -@Controller, @RequestMapping
 - @PathVariable annotation
 - Handling an HTML form using @RequestParam annotation
 - Understanding @ModelAttribute Annotation
 - Data Binding with Date, Collection
 - Data Binding with a User-Defined Type, BindingResult
 - @InitBinder annotation, WebDataBinder, CustomDateEditor
 - Writing your own custom property editor class
 - Form Validations