

## Mastering Spring from Basic To Advance

**Course Duration: 56 Hours**

**Course Code : SPR-601**

### 1. Course Overview

The *Mastering Spring from Basic to Advance* course is designed to help developers gain a comprehensive understanding of the Spring Framework ecosystem. Starting with the core fundamentals of Spring, this course gradually progresses to advanced concepts including Spring Boot, Spring Data, Spring REST, and Microservices architecture. Participants will gain the skills to develop, test, and deploy enterprise-level Java applications efficiently with Spring.

### 2. What You'll Learn?

- Fundamentals of Spring Framework and dependency injection (IoC)
- Spring MVC for building robust web applications
- Working with Spring Boot for rapid application development
- Data access using Spring Data JPA and Hibernate
- RESTful Web Services with Spring REST
- Security implementation with Spring Security
- Microservices architecture with Spring Cloud
- Testing Spring applications (JUnit, Mockito)
- Deployment and integration with Docker and cloud platforms

### 3. Target Audience

- Java Developers looking to expand their expertise
- Backend Developers aiming to learn Spring Boot and Microservices
- Students and IT professionals aspiring to become **Full Stack Java Developers**
- Anyone interested in enterprise-level Java application development

### 4. Pre-Requisites

- Basic knowledge of Core Java
- Familiarity with Object-Oriented Programming concepts
- Understanding of SQL and relational databases
- (Optional) Basic knowledge of web technologies (HTML, CSS, JS)

### 5. Course Content

#### Module 1: Introduction to Spring Framework

- Understanding Dependency Injection and Inversion of Control
- Spring Beans and ApplicationContext
- Spring Configuration (XML, Annotation, Java-based)

#### Module 2: Spring MVC

- Building web applications with Spring MVC
- Controllers, Views, and Models
- Form handling and validation

#### Module 3: Spring Boot Essentials

- Introduction to Spring Boot
- Auto-configuration and Spring Initializr

- Creating standalone Spring Boot applications

### **Module 4: Data Handling with Spring Data JPA**

- Introduction to ORM and Hibernate
- Repository abstraction in Spring Data JPA
- Query methods and custom queries

### **Module 5: RESTful Web Services with Spring**

- Designing and implementing REST APIs
- JSON/XML support
- Exception handling in REST

### **Module 6: Spring Security**

- Authentication and Authorization
- Securing REST endpoints
- OAuth2 and JWT integration

### **Module 7: Microservices with Spring Cloud**

- Introduction to Microservices
- Service Discovery with Eureka
- API Gateway with Zuul/Spring Cloud Gateway
- Centralized configuration and fault tolerance

### **Module 8: Testing Spring Applications**

- Unit testing with JUnit and Mockito
- Integration testing with Spring Test
- Test-driven development practices

## Module 9: Deployment and Advanced Topics

- Packaging Spring Boot applications
- Deploying on Docker
- Spring with Kubernetes and cloud platforms

