

Certificate Course in Spring Boot

Duration: 3 Months

Course Overview

The **Certificate Course in Spring Boot** provides learners with a solid foundation in **modern Java-based backend development** using the Spring Boot framework. The course covers **Spring Boot MVC, Microservices architecture, REST API development, security, and deployment**, with an emphasis on **hands-on projects** to prepare learners for real-world enterprise applications.

Course Objectives

1. To introduce the **Spring Boot framework** and its ecosystem.
 2. To develop **web applications** using Spring Boot MVC.
 3. To implement **RESTful APIs** with CRUD operations.
 4. To provide knowledge of **microservices architecture** and inter-service communication.
 5. To integrate **Spring Security** for authentication and authorization.
 6. To train students in **database connectivity (JPA/Hibernate)** with Spring Boot.
 7. To give hands-on experience with **real-world projects** and **deployment techniques**.
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Course Outcomes

By the end of this course, learners will be able to:

- Build **standalone Spring Boot applications**.
 - Develop **REST APIs** and integrate with databases.
 - Apply **Spring Security** for secure authentication and authorization.
 - Understand and implement **microservices-based architecture**.
 - Deploy Spring Boot applications on **cloud and local servers**.
 - Work as **Java Backend Developer, Spring Boot Developer, or API Engineer**.
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Course Syllabus

Module 1: Introduction to Spring Boot & MVC

- Introduction to Spring Framework & Spring Boot
 - Setting up Spring Boot project (Maven/Gradle, Spring Initializr)
 - Spring Boot Annotations & Configuration
 - Spring Boot MVC Architecture
 - Controllers, Services & Repositories
 - Thymeleaf templates and form handling
 - Dependency Injection & Bean Management
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Module 2: RESTful APIs & Database Integration

- Introduction to REST Architecture
 - Building RESTful APIs with Spring Boot
 - CRUD Operations with Spring Boot REST
 - Data Persistence with JPA & Hibernate
 - Connecting Spring Boot with MySQL/PostgreSQL
 - Exception Handling in REST APIs
 - Postman/Swagger for API Testing
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Module 3: Microservices & Security

- Introduction to Microservices Architecture
 - Creating & Managing Microservices with Spring Boot
 - Inter-service Communication (REST/Feign Client)
 - API Gateway & Service Discovery (Eureka/Zuul basics)
 - Spring Security – Authentication & Authorization
 - JWT (JSON Web Token) based Authentication
 - Role-based Access Control
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Module 4: Deployment & Hands-on Project

- Packaging & Running Spring Boot JARs
 - Externalized Configuration & Profiles
 - Logging & Monitoring with Actuator
 - Deploying Spring Boot apps on Tomcat & Cloud (Heroku/AWS)
 - Hands-on Project – Real-World Spring Boot Application (e.g., E-commerce API / Employee Management System / Online Booking System)
 - Final Project Presentation & Assessment
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☒ This **3-month course** ensures learners gain **practical backend development skills** with **Spring Boot, REST APIs, Microservices, and Security**.