

KOENIG SOLUTIONS • COURSE OUTLINE

Programming with JavaScript and Groovy (JS Institute)

Learn to write JavaScript and Groovy scripts, from core syntax and async patterns to Groovy-based Jenkins pipelines and automation.

5 Days

20 HOURS

32

TOPICS

10

HANDS-ON LABS

COURSE OVERVIEW

This course covers JavaScript fundamentals, including variables, data types, operators, control structures and functions, before moving into advanced concepts such as arrays, objects, JSON, higher-order functions, callbacks, promises and async/await. It then introduces Groovy scripting, comparing its syntax with Java and covering data types, collections, closures and control flow, followed by Groovy for automation, including string and file handling, JSON and XML parsing, exception handling and writing Jenkins pipelines with the Groovy DSL. The final module compares JavaScript and Groovy use cases and works through a mini-project that integrates both languages for data handling and deployment automation.

WHO THIS COURSE IS FOR

Developers

LEARNING OBJECTIVES

- Explain JavaScript data types, operators and control structures
- Apply functions, closures and scope in JavaScript
- Manipulate arrays, objects and JSON data using higher-order functions
- Implement asynchronous behaviour with callbacks, promises and async/await
- Compare Groovy syntax and typing with Java
- Apply Groovy closures, collections and control flow
- Implement file handling, JSON and XML parsing in Groovy
- Develop Jenkins pipelines using the Groovy DSL

32 Topics

DAY 1 JavaScript Fundamentals & Developer Essentials

TOPICS

2 Labs

- Introduction to JavaScript, ECMAScript versions, and real-world use cases
- **Variables:** var, let, and const, understanding scope
- JavaScript data types and type coercion
- **Operators:** arithmetic, logical, relational
- **Control structures:** if-else, switch, for, while, do-while loops
- Function declarations, expressions, arrow functions
- Understanding scope, hoisting, closures (intro)

DAY 2 JavaScript Advanced Concepts

TOPICS

2 Labs

- **Arrays and objects:** creation, manipulation, iteration
- **JSON:** parse, stringify, use cases in APIs
- **Higher-order functions:** map(), filter(), reduce()
- Callback functions and asynchronous behavior
- Promises and async/await
- Error handling with try-catch-finally
- Basic debugging using browser console

DAY 3 Introduction to Groovy Scripting

TOPICS

2 Labs

- What is Groovy and where is it used (Jenkins, Gradle, scripting)
- Groovy vs Java syntax
- Script mode vs class mode
- Groovy data types and dynamic typing
- Working with lists, maps, and ranges
- Defining and using closures
- **Control flow in Groovy:** if, switch, loops

DAY 4 Groovy for Automation & DSLs

TOPICS

2 Labs

- Working with strings and files in Groovy
- JSON and XML parsing using Groovy built-in libraries
- Exception handling in Groovy
- Overview of Jenkins pipeline as code
- Declarative vs scripted pipelines in Jenkins
- Writing a Jenkinsfile with Groovy DSL

TOPICS

2 Labs

- Use cases comparison: JavaScript vs Groovy in automation and web

Integration Examples:

TOPICS

- JavaScript for frontend logic or lightweight scripts
- Groovy for Jenkins, CI/CD, and build scripting

Project Walkthrough Combining Both Scripts:

TOPICS

- Use JavaScript to extract and format data
- Use Groovy to process data or automate deployment

HANDS-ON LABS

Practise What You Learn

MODULE	ACTIVITY
JavaScript Fundamentals & Developer Essentials	■ Write conditional and looping scripts ■ Build a simple calculator or decision-based app using functions
JavaScript Advanced Concepts	■ Parse JSON data and manipulate it ■ Simulate API call behavior with Promises or async/await
Introduction to Groovy Scripting	■ Write scripts using Groovy collections and closures ■ Build small automation tasks using loops and conditions
Groovy for Automation & DSLs	■ File operations and content parsing ■ Jenkins pipeline example using scripted and declarative styles
Integration, Real-world Use Cases & Mini-Project	■ Complete a mini-project integrating both JavaScript and Groovy ■ Prepare a reusable script library or template for your environment

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

FLEXIBLE DELIVERY

Learn the Way That Suits You

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Live Online Classes (ILO)

Fly-Me-A-Trainer (FMAT)

Flexi (Self-Paced)

1-on-1 Training

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✉ info@koenig-solutions.com