

**Jenkins Pipeline Scripting**

**Course Number:** JEN-116WA  
**Duration:** 2 days

**Overview**

This Jenkins Pipeline Scripting training course teaches attendees how to automate the continuous integration and continuous delivery (CI/CD) processes using Jenkins. Participants get an in-depth look at the Jenkins pipeline system and learn how to write powerful Groovy scripts to automate builds across multiple machines.

**Prerequisites**

All attendees must know the basics of Jenkins.

**Materials**

All Jenkins training students receive comprehensive courseware.

**Software Needed on Each Student PC**

Attendees will not need to install any software on their computers for this class. The class will be conducted in a remote environment that Accelebrate will provide; students will only need a local computer with a web browser and a stable Internet connection. Any recent version of Microsoft Edge, Mozilla Firefox, or Google Chrome will work well.

**Objectives**

* Understand CI/CD pipeline concepts
* Use Groovy programming to automate tasks
* Build, test, and deploy activities following Jenkins' best practices
* Use libraries
* Implement best practices for pipeline code

**Outline**

* Introduction
* Jenkins Essentials Refresh
  + Continuous integration, continuous delivery (CI/CD)
  + Jenkins as orchestration for build tasks
  + Jenkins job types
  + Scheduling and triggering jobs
  + Security
* Pipeline Concepts
  + Role for pipelines
  + Declarative and scripted pipelines
  + Declarative pipeline end-to-end example
  + Scripted pipeline end-to-end example
* Pipeline Domain-Specific Language
  + Agents and nodes
  + Stages and steps
  + Workspaces
  + Shell and tools
  + Credentials and secret management
  + User input
  + Flow control
  + Stashing and archiving
  + Notification
* Distributed Builds
  + Designing for scale
  + Controlling where jobs run
  + Configuration management
  + Considerations for distributed builds
  + State management
  + Concurrency concerns
  + Latency concerns
* Selected Plugins
  + Git, GitHub, GitLab, Bitbucket
  + Gerrit
  + Artifactory
  + Jira
  + Sonar
* Groovy for Pipelines
  + Groovy and Pipeline Groovy
  + How pipeline Groovy works
  + @NonCPS annotation
  + Good practices for pipeline code
* Libraries
  + Role of libraries
  + Defining libraries
  + Library structure
  + Using libraries
* Extending Pipelines with Groovy
  + Groovy syntax
  + Data types
  + Operators
  + Flow control
  + Try/catch and exceptions
  + Functions
  + Closures
  + Classes
* Best Practices
  + Best practices for writing and using pipelines
  + Common mistakes and how to avoid them
* Conclusion