

Source Code Management & Automation (3 Months)

Duration: 3 Months (~120 Hours)

Mode: Live Online / Classroom

Tools & Technologies: Git, GitHub, Jenkins, Shell Scripting, Linux Administration

Certifications Prepared: LFCS: Linux Foundation Certified System Administrator, GitHub Foundations (optional)

Syllabus

Week 1: Linux Fundamentals & Git Basics

- Linux command-line essentials, user management, file permissions
- Installing and configuring Git
- Git workflow: init, clone, commit, push, pull
- Hands-on: Create and manage Git repository
- Assignment

Week 2: Advanced Git & Branching Strategies

- Branching, merging, rebasing
- Resolving conflicts
- Git workflows: GitFlow, feature branching
- Hands-on: Collaborative branching model
- Assignment

Week 3: GitHub & Collaboration

- Creating repositories on GitHub
- Forks, pull requests, issues, and projects
- Collaborating with teams
- Hands-on: Manage open-source style project on GitHub
- Assignment

Week 4: Jenkins Fundamentals

- Introduction to Jenkins and CI concepts
- Installing Jenkins, configuring jobs and pipelines
- Integrating Jenkins with GitHub
- Hands-on: Build automation with Jenkins
- Assignment
- Mock Interview 1

Week 5: Jenkins Pipelines

- Declarative vs scripted pipelines
- Pipeline syntax and stages
- Hands-on: Multi-branch pipeline project
- Assignment

Week 6: Automation with Shell Scripting

- Shell scripting basics
- Writing scripts for build and deployment automation
- Hands-on: Automate backup and deployment tasks
- Assignment

Week 7: Advanced Jenkins Integrations

- Integrating Jenkins with Docker and Kubernetes
- Using Jenkins plugins for automation
- Hands-on: Jenkins pipeline deploying containerized app
- Assignment

Week 8: Capstone Project & Interview Prep

- Project: Full CI/CD pipeline with Jenkins and GitHub
- Assignment
- Mock Interview 2

Learning Outcomes

- Understand source code management using Git and GitHub
- Automate builds and deployments with Jenkins and scripting
- Implement CI/CD pipelines with best practices
- Manage branching, merging, and versioning strategies
- Prepare for Linux Foundation Certified System Administrator (LFCS) and GitHub Foundations