CI/CD: BUILD, TEST, DEPLOY

Course Code: 840154

Learn how to build, test, and deploy modern applications using GitHub Actions, Docker, and Ansible in a fully automated CI/CD pipeline.

In today's fast-paced development environments, the ability to automate and streamline software delivery is more critical than ever. CI/CD: Build, Test, and Deploy is a hands-on, three-day course designed to help developers, DevOps engineers, and IT professionals build confidence and fluency in modern continuous integration and deployment practices. Through a blend of real-world examples, guided labs, and practical demos, learners will explore how to build robust pipelines using GitHub Actions, Docker, and Ansible—tools that are shaping the future of software delivery.

The course begins by grounding participants in the principles of DevOps and the CI/CD lifecycle, then dives into authoring workflows, automating tests, and deploying applications across environments. Along the way, learners will gain experience with containerization, secure pipeline practices, and monitoring strategies that support scalable, reliable releases. Whether you're new to CI/CD or looking to sharpen your automation skills, this course offers a structured, approachable path to mastering the tools and techniques that power modern DevOps.

What You'll Learn

- Explain the need for CI/CD and how it differs from traditional workflows
- Describe the difference between Continuous Integration, Delivery, and Deployment
- Build automated pipelines using tools like GitHub Actions
- Implement automated testing workflows
- Deploy applications using configuration tools like Ansible
- Build and deploy Docker images through automated CI/CD workflows

Who Needs to Attend

This course is ideal for professionals who are ready to take the next step in modern software delivery. Whether you're a junior developer looking to break into DevOps, an IT operations specialist exploring automation, or a QA engineer aiming to streamline deployment workflows, you'll find practical value here. It's also a great fit for Site Reliability Engineers and anyone involved in building or maintaining CI/CD pipelines who wants to deepen their hands-on experience with GitHub Actions, Docker, and Ansible.

Prerequisites

To get the most out of this course, learners should have prior experience with software development and be comfortable working in a terminal environment. Familiarity with Git and GitHub is essential, as version control and GitHub Actions are core to the hands-on labs. A basic understanding of scripting—whether in shell, Python, or a similar language—will also help participants follow along with automation tasks and workflow authoring.

While no prior experience with Docker or Ansible is required, having some exposure to infrastructure concepts or CI/CD pipelines will make the learning curve smoother. This course is designed to build on foundational skills, so learners should come prepared to engage with real-world tools in a fast-paced, practical setting.

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VIRTUAL CLASSROOM LIVE	$2,595 CAD	3 Day

Virtual Classroom Live Outline

1. **What is DevOps?**
   - Definition and core principles
   - DevOps lifecycle and stages
   - DevOps vs traditional development
   - DevOps culture, collaboration, and benefits
   - Real-world DevOps use cases
2. **Introduction to CI/CD**
   - CI/CD overview and importance
   - CI vs CD vs CDP explained
   - Business value of automation
   - CI/CD tools and workflow diagram
   - Feedback loops and adoption challenges
3. **Breakdown of CI/CD Stages**
   - Source, Build, Test, Release
   - Deploy, Operate, Monitor
   - Pipeline stage dependencies
4. **Build Stage : Foundations**
   - Understanding build stage and Git basics
   - GitHub Actions and workflow triggers
   - YAML syntax and folder structure
5. **Build Stage – Workflow Authoring**
   - Write GitHub Actions build workflow
   - Install, build steps, and logging
6. **Docker & Containerization**
   - What is Docker and containerization
   - Writing and tagging Dockerfiles
   - Docker in CI/CD pipelines
   - Docker security tips
7. **Test Stage**
   - Importance and types of testing
   - Testing tools (PyTest, Jest)

- Add test job to GitHub Actions
- Handle test failures and visualize results

8. **Deploy Stage**
   - Deployment concepts and environments
   - Deployment using GitHub Actions
   - Docker image deployment

9. **Ansible Basics for Deployment**
   - What is Ansible and why use it
   - Inventory files and SSH setup
   - Playbook structure and common tasks

10. **Adding Ansible to GitHub Actions**
    - Trigger Ansible from GitHub Actions
    - Use dawidd6/action-ansible-playbook
    - Pass secrets and inventory securely

11. **Securing Your Pipeline**
    - GitHub secrets and .env files
    - Avoid hardcoded values
    - Compliance gates and approvals

12. **Monitoring and Best Practices**
    - GitHub logs and Prometheus basics
    - What to monitor in CI/CD
    - Caching and optimization tips

Mar 30 - Apr 1, 2026 | 8:30 AM - 4:30 PM EDT

May 4 - 6, 2026 | 8:30 AM - 4:30 PM EDT

Jun 8 - 10, 2026 | 8:30 AM - 4:30 PM EDT

Jul 6 - 8, 2026 | 8:30 AM - 4:30 PM EDT

Aug 31 - Sep 2, 2026 | 8:30 AM - 4:30 PM EDT

Sep 28 - 30, 2026 | 8:30 AM - 4:30 PM EDT

Oct 5 - 7, 2026 | 8:30 AM - 4:30 PM EDT

Nov 23 - 25, 2026 | 8:30 AM - 4:30 PM EST

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