

**Fundamentals of DevOps**

**Course Number:** DVOP-160
**Duration:** 2 days

**Overview**

DevOps (Development and Operations) is an approach to automation and platform design that integrates all areas of product delivery as a shared responsibility throughout the entire Software Development Life Cycle (SDLC). This Fundamentals of DevOps training course introduces attendees to the building blocks of DevOps and teaches them how to successfully automate the SDLC.

**Prerequisites**

Familiarity with operational command line commands on Windows or Linux is helpful but not required.

**Materials**

All DevOps training attendees receive comprehensive courseware.

**Software Needed on Each Student PC**

Attendees will not need to install any software on their computer 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**

* Implement a process where development, deployment, and service management all work together
* Provide delivered value with a predictable cycle time
* Architect DevOps strategies and automation

**Outline**

* Introduction
* DevOps Origin and Evolution
	+ DevOps history
	+ What DevOps is and is not
	+ DevOps goals and outcomes
		- CALMS
	+ Why business and IT are driving DevOps
		- Stakeholders
* DevOps Components, Principles, and Practices
	+ The Golden Circle
		- Why, how, what
	+ Breaking the IT silo culture
		- Outcomes and results
	+ The Three Ways
	+ The Theory of Constraints
		- Common constraints
		- Overcoming constraints
	+ Developing a learning culture
	+ Continuous testing
	+ Continuous integration (CI)
	+ Continuous delivery (CD)
	+ CI/CD tools and skills
	+ Continuous deployment
	+ Site reliability engineering (SRE) overview
	+ Resilience engineering
	+ DevSecOps (overview)
	+ ChatOps (overview)
	+ Kanban
* Business and Technology Frameworks
	+ Adoption and integration of multiple frameworks
		- Agile, Scrum, SCCS, SAFe, ITSM, Lean
	+ Value stream mapping
	+ Improvement Kata
* Organizational Culture
	+ Cultural and technical debt
	+ Characteristics of a DevOps culture
		- High and low trust
		- Flow of information
		- Adoption and stages of change
		- Stages of change acceptance
	+ Conflict modes
* DevOps Toolchains
	+ Overview and listing of DevOps tools
	+ Cloud computing, containers, and microservices
	+ Steps to improving automation
		- Communication and collaboration
		- Integrating complementary tools
		- Testing and monitoring
		- Infrastructure as code (IaC)
	+ The deployment pipeline
* Measurement and Metrics
	+ Measuring IT performance
	+ Measuring success
	+ DevOps metrics pyramid
* Conclusion
	+ Factors that lead to critical success
		- Challenges
		- Risks
	+ Challenges to the adoption of DevOps practices