

# DevOps Engineering Foundation<sup>SM</sup> Course

## Course Description:

This course explains the many aspects of DevOps engineering that leaders and practitioners can execute upon. While DevOps Foundation provides an overview of DevOps, this course will provide a closer look at the implementation process from an engineering perspective. It is an in-depth view of the major aspects of engineering DevOps. An engineering approach is critical to DevOps journeys. This course provides the foundations of knowledge, principles and practices from a technical perspective needed to engineer a successful DevOps solution.

DevOps Institute® and ITSM Academy® provides the course curriculum and the exam is provided through DevOps Institute®.

**Course Objectives:** Attendees acquire an understanding of:

- ✓ How to engineer DevOps solutions
- ✓ DevOps Technologies
- ✓ Applications Architectures
- ✓ Continuous Integration
- ✓ Continuous Testing
- ✓ Ephemeral Elastic Infrastructures
- ✓ Continuous Delivery and Deployment
- ✓ Metrics, Monitoring, Observability and Governance
- ✓ DevOps Humans
- ✓ Future Trends

**Audience:** The primary audience for this course includes IT Professionals involved in engineering and technical practices.  
(Min: 5, Max: 20)

- DevOps Practice Owners and Process Designers
- Developers, QA Engineers, and Managers who are interested in understanding how DevOps works
- Employees and managers responsible for engineering or improving processes
- Consultants guiding their clients through process improvement and DevOps initiatives
- Anyone responsible for managing process-related requirements, ensuring the efficiency and effectiveness of processes, and maximizing the value of processes

**Course Length:** 16 hours (can be 2-4 days based on customer schedule preference)

**Prerequisites:** Some familiarity with DevOps processes and Agile is recommended

## Course Materials:

- ✓ Instructor-led training, exercises, and assignment facilitation
- ✓ Learner Manual (excellent post-class reference)
- ✓ Participation in in unique exercises designed to apply concepts
- ✓ Sample exam and exam preparation
- ✓ Additional resources of information (Videos, Reports, Articles, Websites, Blogs, Books)
- ✓ DevOps Engineering Foundation examination provide by DevOps Institute



## Certification Exam:

Learners who choose to certify in this DevOps discipline will be equipped to earn the **DevOps Engineering Foundation Certification** by achieving a passing score (65%) on the 60-minute exam, consisting of 40 multiple choice questions. Participants are provided with an **exam voucher** so they can schedule the exam at their convenience after the course.

## Course Outline: DevOps Engineering Foundation

### Module 1: DevOps Engineering Introduction

- DevOps Foundation
- Principles and Practices
- Related Frameworks
- Performance and Benefits

### Module 2: DevOps Technology

- Source and Artifacts Control
- CI/CD Pipelines
- Tools and Toolchains
- Application Release Automation
- Value Stream Management

### Module 3: Applications Architectures & Continuous Integration

- Application Architectures
- Containers
- Continuous Integration

### Module 4: Continuous Testing

- CT Tenets
- Test Creation and TDD
- Test Acceleration and Results
- Test Environment Management

### Module 5: Ephemeral Elastic Infrastructures

- Virtual and Cloud
- Configuration Management
- Infrastructure-as-Code
- Containers Orchestration
- GitOps

### Module 6: Continuous Delivery and Deployment

- Continuous Delivery and Deployment
- Release Automation
- Deployment Strategies

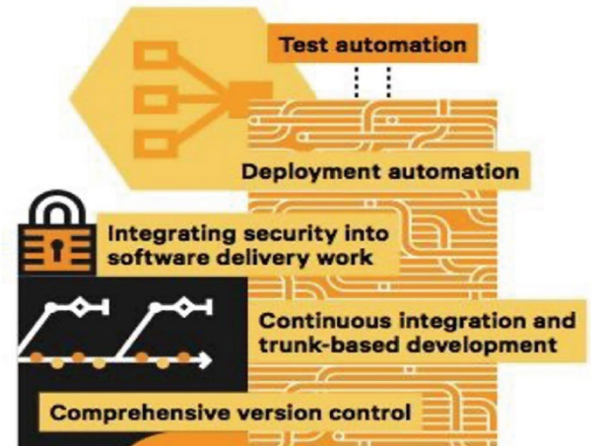
### Module 7: Metrics, Monitoring, Observability, Gov.

- DevOps Metrics
- Monitoring
- Observability
- Government

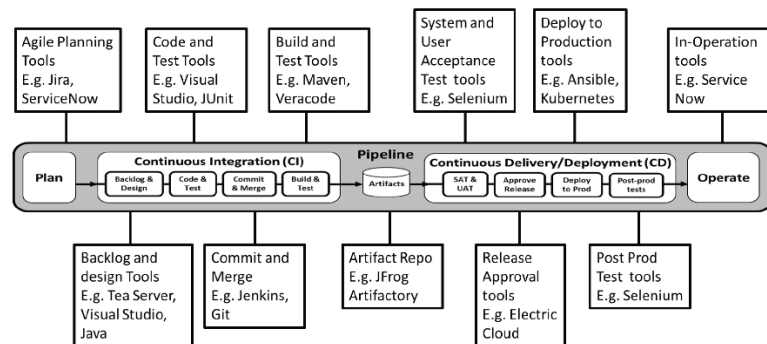
### Module 8: DevOps Engineering Humans

- DevOps Culture
- Team Topologies
- Continuous Learning
- Future DevOps Trends

Factors that positively contribute to continuous delivery:



## CI/CD Tools and Toolchains



Strategy/Parameters	No Downtime	Real traffic Testing	User targeting	Infra Cost	Rollback duration	Negative User impact
Recreate	●	●	●	\$	🕒	●
Blue/Green	●	●	●	\$\$\$	🕒	●
Canary	●	●	●	\$	🕒	●
A/B Testing	●	●	●	\$	🕒	●
Shadow	●	●	●	\$\$\$	🕒	●