

Course Outline

DevOps Implementation Boot Camp (ICP-FDO)

Course DEVOPSBC: 3 days Instructor Led

About this course

A DevOps practice is built on a foundation of culture, tools, and structured collaboration. Cross-functionality of teams is critical, as is ongoing support from leaders and managers. Automation and high-efficiency tools support everything. Above all, the essential ingredient is the transformation in mentality of your IT teams from a focus on individual job roles to one of unified team mission. That transformation requires trust, new tools, and a tangible plan. It requires speed, high visibility, and an Agile mentality for everyone involved in developing, deploying, and maintaining applications.

This three-day DevOps course is loaded with practical real-world tools and techniques. From the nation's largest Agile development trainer comes a comprehensive program to get you started on the road to DevOps success. You will leave this course fully literate in the entire array of available DevOps tools and lessons, ready to select what's right for you and chart a path to fully realized IT success in your own organization.

Audience profile

This interactive DevOps course is designed for both business and technology professionals involved in the implementation of DevOps practices.

Professionals who may benefit include:

- Anyone in an IT Leadership role
- CIOs / CTOs
- System Administrators
- IT Operations Staff
- Release Engineers
- Configuration Managers
- Anyone involved with IT infrastructure
- Developers and Application Team leads
- ScrumMasters
- Software Managers and Team Leads
- IT Project & Program Managers
- Product Owners and Managers

At course completion

After completing this course, students will be able to:

- Leverage infrastructure automation using configuration tools
- Chart a path to continuous IT operations
- Spot feedback loops in IT work and capitalize on them
- Implement agile concepts into infrastructure management
- Continuously monitor capacity and operations
- Map and visualize IT workflow to eliminate bottlenecks and streamline capacity
- Effectively communicate the progress and results of your DevOps efforts to management
- Implement a plan for leadership participation and transformation of the IT mentality

Course Outline

- Transform IT from an unpredictable cost center to a strategic source of business value and competitive advantage

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Part 1: Introduction

1. DevOps Defined
 - DevOps (Then and Now)
 - CI/CD
 - Infrastructure as Code
 - BizDevOps
 - DevSecOps
 - AIOps
 - DataOps
2. High-Performance IT Organizations
 - Elite Performers
 - Use of the Cloud
 - Work-Life Balance
 - Optimized Change Review
3. Origins and History of DevOps
 - The Quality Movement and W Edwards Deming
 - The Lean Movement and the Toyota Production System
 - The Agile Movement – Mindset, Value, Principles & Practices
 - The Continuous Delivery Movement
4. Argument for DevOps
 - Business Value of DevOps
 - Net Effect of DevOps
 - **Exercise:** Argue for the value of DevOps in your organization

Part 2: Maturing a DevOps Practice in the Enterprise

1. CALMS – The 5 DevOps Principles
2. The 5 Cultural Challenges
3. 5 Cultural Dimensions
4. Value Stream Mapping

Course Outline

- Value Stream Definition and Examples
- **Exercise:** *Choose and Map a Case Study Value Stream*
- Analyze: Value Stream Lead Time, Quality, Involvement
- **Exercise:** *Analyze a Value Stream*

Part 3: Your DevOps Journey - Optimize Flow

1. Principles of Flow

- 6 Principles of Flow from the DevOps Handbook
- 8 Principles of Continuous Delivery from the Continuous Delivery book
- **Exercise:** *Apply Principles to your Case Study Value Stream*

2. Infrastructure as Code

3. Infrastructure & Application Configuration Management

- Configuration Management Tools
- **Exercise:** *Configuration Management in your Case Study Value Stream*

4. Deployment Pipeline

- Deployment Pipeline Stages and Tools
- Deployment Orchestration Tools
- Deployment Pipeline: Everything in Version Control
- **Exercise:** *Deployment Pipeline in your Case Study Value Stream*

5. DevOps Quality Management

- Quality Foundations
- Quality Principles
- Quality Practices
- Test Automation Architecture
- Test Automation Pyramid
- Strategies for Managing Test Data
- Code Analysis Tools
- Automated Testing Tools
- **Exercise:** *DevOps Quality Management in your Case Study Value Stream*

6. CI/CD

- Continuous Integration
- Continuous Delivery
- **Exercise:** *CI/CD in your Case Study Value Stream*

7. Database Continuous Integration (DBCI)

- **Exercise:** *DBCI in your Case Study Value Stream*

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8. Application Management Strategies
9. Application Architecture – SOA, Microservices, Strangler Pattern
10. Infrastructure Architecture - Virtualization & The Cloud
11. Containerization
12. *Exercise: Optimize Flow in Your Case Study Value Stream*

Part 4: Your DevOps Journey - Amplify Feedback

1. Objective & Principles of Feedback
2. Telemetry Definitions & Concepts
 - Telemetry Principles
 - **Exercise: Telemetry Principles in your Case Study Value Stream**
 - Integrating Security into Production Telemetry
 - Telemetry Layers & Levels
 - Ensuring Effective Alerts
 - System Monitoring, Log Agregation, and Alerting Tools
 - DevOps Metrics
3. Advanced uses of Telemetry
 - Using Telemetry to Anticipate Problems
 - Feedback for Safe Deployment of Code
 - Developers Follow Their Apps Downstream
 - Hypothesis-Driven Development and A/B Testing
 - **Exercise: Telemetry in your Case Study Value Stream**
4. Change Review and Coordination
5. **Exercise: Amplify Feedback in Your Case Study Value Stream**

Part 5: Your DevOps Journey - Continual Learning & Experimentation

1. Learning Culture
 - Blameless Postmortems
 - Responses to Failure
 - Blameless Postmortems
2. Knowledge Sharing
3. Innovation Culture

Course Outline

- Institutionalize the Improvement of Daily Work
- Encouraging Experimentation
- Holding Learning and Improvement Events (Hackathons, Kaizen Blitzes, Rehearsing Large-Scale Failures, Fault Injection)

4. Role of Leadership

5. **Exercise:** *Learning & Innovation Culture in your organization*

Part 6: Planning Your DevOps Journey

1. Cultural challenges

2. Organizational challenges

3. Transformation Patterns You Can Follow

- Lean Startup Teams
- Collaboration Tools
- Automate Everything You Can
- Reserve Time for Improvement

4. Planning DevOps Transformation

5. **Exercise:** *Your DevOps Action Plan*