

## Curso DDEVOPFUN - DevOps Fundamentals

21,00 Horas

### Introdução

Se tem ou faz parte de uma equipa de desenvolvimento saiba que o DevOps é o modelo (cultural e operacional) que permite incrementar o desempenho das equipas de desenvolvimento de forma a serem atingidos os objetivos de negócio da organização.

A certificação é composta por Formação DevOps Fundamentals e Exame.

### Público-alvo

Individuals involved in IT development, IT operations, or IT service management.

Individuals whose role are touched by DevOps and continuous delivery, such as the following IT roles:

- . DevOps engineers
- . Product owners
- . Integration specialists
- . Operations managers
- . Incident and change managers
- . System administrators
- . Network administrators
- . Business managers
- . Automation architects
- . Enterprise architects

### Quando completar o curso

At the end of this course, you will be able to:

- . Explain the drivers responsible for the emergence of DevOps.
- . Define and discuss the key concepts and principles of DevOps.
- . List and explain the business benefits of DevOps and continuous delivery.
- . Describe the Service Delivery process.
- . Explain the concepts of test automation, infrastructure automation, and build and deployment automation.

- . Describe how DevOps relates to Lean and Agile methodologies.
- . Summarize case studies of IT organizations that are making the transformation to Adaptive IT and DevOps models.
- . List the most common and popular DevOps tools.
- . Discuss the critical success factors for DevOps implementation.

## Pré-requisitos

Basic familiarity with Agile, Scrum, Lean, and ITSM principles is beneficial.

## Exames

Devops Fundamentals Exam

O exame tem as seguintes características:

- Formato do exame: Online (sem consulta)
- Duração: 60 minutos + 15 minutos (extra para não-nativos em Inglês)
- Perguntas: 40 perguntas (escolha múltipla)
- Resultado: 65% de sucesso (requisito mínimo para passar)

## Certificado

Este curso confere certificado de frequência a todos os participantes que frequentem no mínimo 80% das horas do curso.

## Conteúdo em detalhe

### 1 - DEVOPS INTRODUCTION

#### 1.1 - Emergence of DevOps:

- Digital Transformation and DevOps
- Why organizations should do DevOps?
- Business Case for DevOps
- DevOps History
- Benefits of DevOps

#### 1.2 - Core Concepts of DevOps:

- DevOps Definitions
- Culture of High Performance IT

- How DevOps is tightly intertwined with Agile and Lean IT?

- DevOps Principles and Aspects of IT

### 1.3 - DevOps Agile Skills Association (DASA):

- DevOps Skills Areas, Knowledge Areas, and Competence Framework
- DASA Qualification Scheme, Mission, and Vision

## 2. CULTURE

### 2.1 - Introduction to a DevOps Culture:

- Build Around Teams: Facilitated Lean Product 'Companies'
- The Boston Consultancy Group (BCG) Matrix
- The Three Horizons Model
- What is DevOps culture?
- Cultural Aspects of a DevOps Team
- DevOps Environment: Service Mindset and Quality at the Source
- What context to provide to facilitate growth areas for teams?

### 2.2 - Key Elements of DevOps:

- What is a team?
- Intrinsically Motivated Teams
- Collaboration: A Success Factor of a Team
- Visual Management: A Key Tool of Teambuilding
- Importance of Quality at the Source
- Cost of Accumulating Technical Debt
- Role of Continuous Improvement in Solving Problems
- Structured Problem-Solving
- The Kaizen Mindset: Tackling the Root Cause of Problems
- Relationship Between Experimentation and Complications
- Courage to Act: A Key Behavior of a DevOps Team
- Courage and Experimentation

- Courageous Behavior Requires Safety
- Experimentation Meetups: A Key Tool of Courage
- Leadership in a DevOps Environment
- Mission Command Versus Central Command
- Importance of Leadership to Overcome Five Barriers of Effective Collaboration
- Leadership and Feedback
- Role of Leaders in Stimulating the Use of Tools to Develop Effective Habits
- Feedback: A Key Leadership Tool

### 2.3 - Implementation of a DevOps Culture:

- How to build a DevOps culture?
- Impact of Treating Change as a Program
- Growing Culture: Experimenting, Measuring, and Probing
- Importance of Tracking the Movement Towards a DevOps Culture
- Cultural Change: A Collective Movement

## 3 - ORGANIZATION

### 3.1 - Organizational Models:

- Impact of DevOps on the Organization
- Alignment of Organizational Model with IT Services
- Traditional Structuring of Teams and Waste
- DevOps “Literally” is No Solution
- Importance of DevOps Hybrid Versions
- Activity-Focused Versus Product-Focused Approaches
- DevOps Organigram

### 3.2 - Autonomous Teams:

- What is autonomy?
- Autonomy of Teams
- Criteria for Autonomous Teams

- Decoupling Point: A Key Consideration for Autonomous Teams
- Conway's Law and Organizations' Architecture
- A Real-life Example: Solving the Autonomy Problems

### 3.3 - Architecting for DevOps:

- Aim of the IT Architecture
- Focus on Building Qualities
- Smaller Services
- Relation Between Complexity and Quality
- Micro Services Architecture (MSA) and its Characteristics
- MSA Supports Faster, Cheaper, Better Software Development
- Architecting for Systemic Resilience
- Moving from Legacy to Smaller Services

### 3.4 - Governance:

- DevOps Governance
- Governance Within Teams and Between Multiple Teams
- Scrum of Scrums with Agile Teams to Coordinate and Collaborate

## 4 - PROCESSES

### 4.1 - Process Basics:

- What is a process?

### 4.2- DevOps in Relation to ITSM:

- ITSM
- DevOps and ITSM

### 4.3 - Agile and Scrum:

- Traditional Versus Agile
- Role of Multidisciplinary Feature Teams
- The Agile Manifesto
- The Scrum Flow

- Advantages of Working Agile

#### 4.4 - Optimizing Processes Using Lean:

- What is Lean?
- The Eight Types of Lean Wastes
- Optimization of Processes Using Value Stream Mapping

#### 4.5 - Business Value Optimization and Business Analysis Using Story Mapping:

- Role of Minimal Viable Product in an Agile Process
- How Story Mapping works?
- Role of Slices in Story Mapping

### 5 - AUTOMATION

#### 5.1 - Automation for Delivery of Software:

- Automation of Routine Jobs
- Automation Changes the Focus Towards Engineering Tasks
- DevOps Teams and Focus on the Delivery of Value
- Everything as Code

#### 5.2 - Continuous Delivery Core Concepts:

- What is continuous delivery?
- Benefits of Automating Continuous Delivery
- Cycle Time Reduction: Continuous Delivery Primary Goal
- Primary Principles of Continuous Delivery
- Continuous Delivery Versus Integration and Deployment
- Continuous Delivery Focus Topics

#### 5.3 - Continuous Delivery Automation Concepts:

- Software has to Flow
- Impact of Continuous Delivery on a DevOps Team's Performance
- Types of Feedback
- Fail Fast: Immediate and Visible Failure!

- DevOps Versus Continuous Delivery

#### 5.4 - Continuous Delivery Automation Focus Topics:

- Automation Build and Software Package Delivery Flow
- Automated Test and Optimized Software Validation (Tests)
- Automated Test: DevOps Merges Specification and Verification
- Automated Deployment and its Benefits
- Deployment Strategies
- Automated Provisioning
- Containerization (Microservices)
- Continuous Delivery Backlog

#### 5.5 - Emergence of Cloud Technology and Principles:

- Emergence of Cloud Computing
- Cloud Services, Self Service Infrastructure, Platform, and Software
- National Institute of Standardization (NIST) Cloud Principles

#### 5.6 - Cloud Service Concepts in a DevOps Organization:

- Cloud Principles in DevOps Organizations
- Different Conversations Between Development and Operations in a Traditional Organization
- Different Conversations Between Development and Operations in a DevOps Organization
- DevOps Platform Teams as a “Cloud” Service Provider
- DevOps Business System Product and Platform Product Teams
- Different Types of Clouds to Operate

#### 5.7 - Automated Provisioning Concepts:

- Pets Versus Cattle
- Desired State Configuration to Automate Environments
- Automated Provisioning with Mutable Infrastructure and Immutable Infrastructure
- Continuous Delivery for Platform Products
- Automated Provisioning and Engineering Mindset

## 5.8 - Platform Product Characteristics and Application Maturity:

- Services Required by DevOps Business System Teams
- Product Teams, Cloud Services, and Freedom
- Use of Platform Services and Maturity of Applications
- How to apply Cloud concepts in an organization?

## 6 - MEASURE AND IMPROVEMENT

### 6.1 - Importance of Measurement:

- Need of Measurement and Feedback
- Importance of Feedback: Three Ways Model
- Measurements and CALMS
- Relation Between Measurement and Responsibility

### 6.2 - Choosing the Right Metrics:

- Survivorship Bias
- Actions Based on Measurements
- Performance Metrics Versus Performance Predictors
- Measuring Leading Indicators for Culture, Organizations, Process Efficiency, Software Development

### 6.3 - Automation, Data Center Automation, and Measurements

- Top Practices Correlated with Deployment Frequency, Lead Time for Changes, and Mean Time to Recover (MTTR)
- Top Five Predictors of IT Performance
- IT Performance: Throughput Versus Stability

### 6.4 - Monitoring and Logging:

- Continuous Monitoring and its Scope
- Optimized Monitoring for DevOps
- Collecting Feedback from an Automated Software Delivery Pipeline
- Dashboards to Build the Feedback Culture (Release Dashboard, Test and Quality Dashboard, Build Dashboard, Performance Dashboard, and Product Usage Dashboard)
- Importance of Logging Stakeholders and Usage Examples