

Designing and Implementing Microsoft DevOps solutions

Course code: MOC AZ-400

This course provides the knowledge and skills to design and implement DevOps processes and practices. Students will learn how to plan for DevOps, use source control, scale Git for an enterprise, consolidate artifacts, design a dependency management strategy, manage secrets, implement continuous integration, implement a container build strategy, design a release strategy, set up a release management workflow, implement a deployment pattern, and optimize feedback mechanisms.

Affiliate	Duration	Course price	ITB
Praha	4	29 200 Kč	40
Brno	4	29 200 Kč	40
Bratislava	4	1 216 €	40

The prices are without VAT.

Course terms

Date	Duration	Course price	Type	Course language	Location
G 25.11.2024	4	29 200 Kč	Presence	CZ/SK	GOPAS Praha
G 09.12.2024	4	1 216 €	Online	CZ/SK	GOPAS Bratislava online
G 09.12.2024	4	29 200 Kč	Online	CZ/SK	GOPAS Praha online
21.01.2025	4	1 216 €	Online	CZ/SK	GOPAS Bratislava online
03.02.2025	4	29 200 Kč	Presence	CZ/SK	GOPAS Brno
03.03.2025	4	29 200 Kč	Presence	CZ/SK	GOPAS Praha
24.03.2025	4	1 216 €	Presence	CZ/SK	GOPAS Bratislava prezenčne
12.05.2025	4	29 200 Kč	Presence	CZ/SK	GOPAS Brno
20.05.2025	4	1 216 €	Online	CZ/SK	GOPAS Bratislava online
23.06.2025	4	29 200 Kč	Presence	CZ/SK	GOPAS Praha

The prices are without VAT.

At course completion students will be able

Plan for the transformation with shared goals and timelines

Select a project and identify project metrics and KPIs

Create a team and agile organization structure

Describe the benefits of using Source Control

Migrate from TFVC to Git

Scale Git for Enterprise DevOps

Recommend artifact management tools and practices

Abstract common packages to enable sharing and reuse

Migrate and consolidate artifacts

Migrate and integrate source control measures

Manage application config and secrets

Develop a project quality strategy

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Designing and Implementing Microsoft DevOps solutions

Plan for secure development practices and compliance rules

Implement and manage build infrastructure

Explain why continuous integration matters

Implement continuous integration using Azure DevOps

Manage code quality including: technical debt, SonarCloud, and other tooling solutions

Manage security policies with open source, OWASP, and WhiteSource Bolt

Implement a container strategy including how containers are different from virtual machines and how microservices use containers

Implement containers using Docker

Inspect open source software packages for security and license compliance to align with corporate standards

Configure build pipeline to access package security and license rating

Configure secure access to package feeds

Inspect codebase to identify code dependencies that can be converted to packages

Identify and recommend standardized package types and versions across the solution

Refactor existing build pipelines to implement version strategy that publishes packages

Manage security and compliance

Differentiate between a release and a deployment

Define the components of a release pipeline

Explain things to consider when designing your release strategy

Classify a release versus a release process and outline how to control the quality of both

Describe the principle of release gates and how to deal with release notes and documentation

Explain deployment patterns, both in the traditional sense and in the modern sense

Choose a release management tool

Explain the terminology used in Azure DevOps and other Release Management Tooling

Describe what a Build and Release task is, what it can do, and some available deployment tasks

Classify an Agent, Agent Queue, and Agent Pool

Explain why you sometimes need multiple release jobs in one release pipeline

Differentiate between multi-agent and multi-configuration release job

Use release variables and stage variables in your release pipeline

Deploy to an environment securely using a service connection

Embed testing in the pipeline

List the different ways to inspect the health of your pipeline and release by using alerts, service hooks, and reports

Create a release gate

Describe deployment patterns

Implement Blue Green Deployment

Implement Canary Release

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Implement Progressive Exposure Deployment

Configure crash report integration for client applications

Develop monitoring and status dashboards

Implement routing for client application crash report data

Implement tools to track system usage, feature usage, and flow

Integrate and configure ticketing systems with development team's work management

Implement a mobile DevOps strategy

Apply infrastructure and configuration as code principles.

Deploy and manage infrastructure using Microsoft automation technologies such as ARM templates, PowerShell, and Azure CLI

Describe deployment models and services that are available with Azure

Deploy and configure a Managed Kubernetes cluster

Deploy and configure infrastructure using 3rd party tools and services with Azure, such as Chef, Puppet, Ansible, SaltStack, and Terraform

Define an infrastructure and configuration strategy and appropriate toolset for a release pipeline and application infrastructure

Implement compliance and security in your application infrastructure

Design practices to measure end-user satisfaction

Design processes to capture and analyze user feedback from external sources

Design routing for client application crash report data

Recommend monitoring tools and technologies

Recommend system and feature usage tracking tools

Analyze alerts to establish a baseline

Analyze telemetry to establish a baseline

Perform live site reviews and capture feedback for system outages

Perform ongoing tuning to reduce meaningless or non-actionable alerts

Prerequisites

Knowledge in extent of the courses which are listed in the bellow sections **Previous Courses** and **Related Courses**

Good understanding of TCP/IP and DNS technologies

Course outline

Transformation Planning

Project Selection

Team Structures

Migrating to Azure DevOps

What is Source Control

Benefits of Source Control

Types of Source Control Systems

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Introduction to Azure Repos
Introduction to GitHub
Migrating from Team Foundation Version Control (TFVC) to Git in Azure Repos
Authenticating to Git in Azure Repos
How to Structure your Git Repo
Git Branching Workflows
Collaborating with Pull Requests in Azure Repos
Why care about GitHooks
Fostering Inner Source
Packaging Dependencies
Package Management
Migrating and Consolidating Artifacts
The concept of pipelines in DevOps
Azure Pipelines
Evaluate use of Hosted vs Private Agents
Agent Pools
Pipelines and Concurrency
Azure DevOps and Open Source Projects (Public Projects)
Azure Pipelines YAML vs Visual Designer
Continuous Integration Overview
Implementing a Build Strategy
Integration with Azure Pipelines
Integrate External Source Control with Azure Pipelines
Set Up Private Agents
Analyze and Integrate Docker Multi-Stage Builds
Introduction to Security
Implement secure and compliant development process
Rethinking application config data
Manage secrets, tokens, and certificates
Implement tools for managing security and compliance in a pipeline
Managing Code Quality
Managing Security Policies
Implementing a Container Build Strategy
Package security
Open source software
Integrating license and vulnerability scans

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- Implement a versioning strategy (git version)
- Introduction to Continuous Delivery
- Release strategy recommendations
- Building a High-Quality Release pipeline
- Choosing a deployment pattern
- Choosing the right release management tool
- Create a Release Pipeline
- Provision and Configure Environments
- Manage and Modularize Tasks and Templates
- Integrate Secrets with the release pipeline
- Configure Automated Integration and Functional Test Automation
- Automate Inspection of Health
- Introduction to Deployment Patterns
- Implement Blue Green Deployment
- Feature Toggles
- Canary Releases
- Dark Launching
- AB Testing
- Progressive Exposure Deployment
- Implement Tools to Track System Usage, Feature Usage, and Flow
- Implement Routing for Mobile Application Crash Report Data
- Develop Monitoring and Status Dashboards
- Integrate and Configure Ticketing Systems
- Introduction to Mobile DevOps
- Introduction to Visual Studio App Center
- Manage mobile target device sets and distribution groups
- Manage target UI test device sets
- Provision tester devices for deployment
- Create public and private distribution groups
- Infrastructure as Code and Configuration Management
- Create Azure Resources using ARM Templates
- Create Azure Resources using Azure CLI
- Create Azure Resources by using Azure PowerShell
- Desired State Configuration (DSC)
- Azure Automation with DevOps
- Additional Automation Tools

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Deployment Modules and Options

Azure Infrastructure-as-a-Service (IaaS) Services

Azure Platform-as-a-Service (PaaS) services

Serverless and HPC Computer Services

Azure Service Fabric

Azure Kubernetes Service

Chef

Puppet

Ansible

Terraform

Security and Compliance Principles with DevOps

Azure security Center

The inner loop

Continuous Experimentation mindset

Design practices to measure end-user satisfaction

Design processes to capture and analyze user feedback

Design process to automate application analytics

Site Reliability Engineering

Analyze telemetry to establish a baseline

Perform ongoing tuning to reduce meaningless or non-actionable alerts

Analyze alerts to establish a baseline

Blameless Retrospectives and a Just Culture

Preparation for Microsoft certification

Most Microsoft certification exams do not require students to attend an official MOC course in order to pass the exam.

This applies to all certifications except for MCM

Official Microsoft MOC courses as well as our own GOC courses are good ways of preparation for Microsoft certifications such as MCP, MTA, MCSA, MCSE or MCM

This does not mean that official MOC courses would serve as the only necessary preparation. The primary goal of an MOC course is to provide for sufficient theoretical knowledge and practical experience to effectively work with the related product

MOC courses usually cover most of the topics required by their respective certification exams, but often do not give every topic the same amount of time and emphasis as may be required to completely pass the exam.

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