Designing and Implementing MS DevOps Solutions – Intensive Training («AZ400»)

Learn about DevOps processes and practices, including planning, source control, artifact management, CI/CD, containers, release management, and feedback optimization. Gain the knowledge and skills to design and implement these DevOps capabilities.

Duration: 4 days
Price: 3'400.–
Course documents: Official Microsoft Courseware and Microsoft Learn
Vendor code: AZ-400

Content

The content of this intensive training is derived from the exam «AZ-400: Designing and Implementing Microsoft DevOps Solutions». Start preparing for the course on Microsoft Learn now. During the intensive training days with the instructor you will work with the official Microsoft course material (more information under «Methodology & didactics»).

Modules:

Introduction to DevOps
This module explores the key areas that organizations must apply to start their DevOps transformation Journey, change the team's mindset, and define timelines and goals.

Plan Agile with GitHub Projects and Azure Boards
This module introduces you to GitHub Projects, GitHub Project Boards and Azure Boards. It explores ways to link Azure Boards and GitHub, configure GitHub Projects and Project views, and manage work with GitHub Projects.

Manage Git branches and workflows
This module explores Git branching types, concepts, and models for the continuous delivery process. It helps companies defining their branching strategy and organization.

Collaborate with pull requests in Azure Repos
This module presents pull requests for collaboration and code reviews using Azure DevOps and GitHub mobile for pull request approvals. It helps understanding how pull requests works and how to configure them.

Explore Git hooks
This module describes Git hooks and their usage during the development process, implementation, and behavior.

Plan foster inner source
This module explains how to use Git to foster inner sources across the organization, implement Fork and its workflows.

Manage Git repositories
This module explores how to work with large repositories, purge repository data and manage and automate release notes using GitHub.

Identify technical debt
This module examines technical debt, complexity, quality metrics, and plans for effective code reviews.

and code quality validation.

Explore Azure Pipelines
This module introduces Azure Pipelines concepts and explains key terms and components of the tool, helping you decide your pipeline strategy and responsibilities.

Manage Azure Pipeline agents and pools
This module explores the differences between Microsoft-hosted and self-hosted agents, details job types, and configures agent pools. Understand typical situations to use agent pools and how to manage their security.

Describe pipelines and concurrency
This module describes parallel jobs and how to estimate their usage. Also, it presents Azure Pipelines for open-source projects, explores Visual Designer and YAML pipelines.

Implement a pipeline strategy
This module describes pipeline strategies, configuring them, implementing multi-agent builds, and what source controls Azure Pipelines supports.

Integrate with Azure Pipelines
This module details Azure Pipelines anatomy and structure, templates, YAML resources, and how to use multiple repositories in your pipeline.

Introduction to GitHub Actions
In this module, you will learn what GitHub Actions, action flow, and its elements are. Understand what events are, explore jobs and runners, and how to read console output from actions.

Learn continuous integration with GitHub Actions
This module details continuous integration using GitHub Actions and describes environment variables, artifacts, best practices, and how to secure your pipeline using encrypted variables and secrets.

Design a container build strategy
This module helps you plan a container build strategy, explains containers and their structure, introduces Docker, microservices, Azure Container Registry, and related services.

Create a release pipeline
This module describes Azure Pipelines capabilities, build and release tasks.

Explore release recommendations
This module explores the critical release strategy recommendations that organizations must consider when designing automated deployments and explains how to define components of a release pipeline and artifact sources, create approves, and configure release gates.

Provision and test environments
This module details target environment provisioning, service connections creation process, and test infrastructure setup. Learn how to configure functional test automation and run availability tests.

Manage and modularize tasks and templates
This module describes the creation of task and variable groups and using release variables and stage variables in your pipeline.

Automate inspection of health
This module describes how to automate the inspection of health events, configure notifications in Azure DevOps and GitHub, set up service hooks to monitor pipelines, measure the quality of your release process, and detail release gates for quality purposes. You'll examine release management tools and details about them.

Introduction to deployment patterns

This module introduces deployment patterns and explains microservices architecture to help improve the deployment cycle and examine classical and modern deployment patterns.

Implement blue-green deployment and feature toggles

This module describes the blue-green deployment process and introduces feature toggle techniques to implement in the development process.

Implement canary releases and dark launching

This module describes deployment strategies around canary releases and dark launching and examines traffic managers.

Implement A/B testing and progressive exposure deployment

This module introduces A/B test and progressive exposure deployment concepts and explores CI/CD with deployment rings -- ring-based deployment.

Integrate with identity management systems

This module describes the integration with GitHub and single sign-on (SSO) for authentication, service principals, and managed service identities.

Manage application configuration data

This module explores ways to rethink application configuration data and the separation of concerns method. Explore Azure App Configuration, details Key-value pairs, App Configuration feature management, and integrate Azure Key Vault with Azure Pipelines.

Explore infrastructure as code and configuration management

This module describes key concepts of infrastructure as code and environment deployment creation and configuration. Also, understand the imperative, declarative, and idempotent configuration and how it applies to your company.

Create Azure resources using Azure Resource Manager templates

This module explores Azure Resource Manager templates and their components and details dependencies and modularized templates with secrets.

Implement Bicep

This module explains Bicep and how it integrates with different tools such as Azure CLI and Visual Studio Code for environment deployment configuration.

Create Azure resources by using Azure CLI

This module explains Azure CLI to create Azure resources, run templates, and detail Azure CLI commands.

Explore Azure Automation with DevOps

This module describes Azure Automation with Azure DevOps, using runbooks, webhooks, and PowerShell workflows. You'll learn how to create and manage automation for your environment.

Implement Desired State Configuration (DSC)

This module describes Desired State Configuration (DSC) and its components for implementation. You can exercise how to import, compile and automate your environment creation, and use DSC for Linux automation on Azure.

Introduction to Secure DevOps

This module introduces DevSecOps concepts, SQL injection attacks, threat modeling, and security for continuous integration.

Implement open-source software

This module explores open-source software and corporate concerns with software components. Also, it explains common open-source licenses, license implications, and ratings.

Software Composition Analysis

This module explains Composition Analysis, how to inspect and validate code bases for compliance, integration with security tools, and integration with Azure Pipelines.

Security Monitoring and Governance

This module describes security monitoring and governance with Microsoft Defender for Cloud and its usage scenarios, Azure Policies, Microsoft Defender for Identity, and security practices related to the tools.

Explore package dependencies

This module explores dependency management concepts and helps to identify project dependencies. You will learn how to decompose your system, identify dependencies, and package componentization.

Understand package management

This module describes package feeds, common public package sources, and how to create and publish packages.

Migrate consolidating and secure artifacts

This module details package migration, consolidation, and configuration to secure access to package feeds and artifact repositories.

Implement a versioning strategy

This module explains versioning strategies for packaging, best practices for versioning, and package promotion.

Introduction to GitHub Packages

This module introduces you to GitHub Packages. It explores ways to control permissions and visibility, publish, install, delete and restore packages using GitHub.

Implement tools to track usage and flow

This module introduces you to continuous feedback practices and tools to track usage and flow, such as Azure Logs Analytics, Kusto Query Language (KQL), and Application Insights.

Develop monitor and status dashboards

This module explains steps to develop monitoring with Azure Dashboards, work with View Designer and Azure Monitor, and create Azure Monitor Workbooks. Also, explore tools to supports monitoring with Power BI.

Share knowledge within teams

This module describes how to share knowledge within teams, Azure DevOps Wikis, and integration with Azure Boards.

Design processes to automate application analytics

This module helps designing process to Application Insights, explores telemetry and monitoring tools and technologies.

Manage alerts, blameless retrospectives and a just culture

This module examines alerts, blameless retrospectives and creates a just culture. It helps improving application performance, reducing meaningless and nonactionable alerts, and explains server response-time degradation.

Key Learnings

- Configuring processes and communications
- Designing and implementing source control
- Designing and implementing build and release pipelines
- Developing a security and compliance plan
- Implementing an instrumentation strategy

Target audience

This course is aimed at anyone interested in designing and implementing DevOps processes or taking the Microsoft Azure DevOps Solutions certification exam.

Requirements

- Cloud computing concepts, including an understanding of PaaS, SaaS, and IaaS implementations.
- Both Azure administration and Azure development with proven expertise in at least one of these areas.
- Version control, Agile software development, and core software development principles. It would be helpful to have experience in an organization that delivers software.

To prepare for this course, we recommend attending one or both of the following courses:

- Microsoft Azure Administrator – Intensive Training («AZ104»)
- Developing Solutions for Microsoft Azure – Intensive Training («AZ204»)

Certification

This intensive training prepares you for:

- **Exam:** «AZ-400: Designing and Implementing Microsoft DevOps Solutions» for the
- **Certification:** «Microsoft Certified: DevOps Engineer Expert»

Please note: In order to receive your «Microsoft Certified: DevOps Engineer Expert» certification, you must have passed either «Microsoft Certified: Azure Administrator Associate» or «Microsoft Certified: Azure Developer Associate».

Further courses

- Implement Security Through a Pipeline Using Azure DevOps – Intensive Training («AZ2X1»)

Any questions?

We are happy to advise you on +41 44 447 21 21 or info@digicomp.ch. You can find detailed information about dates on www.digicomp.ch/courses-microsoft-technology/microsoft-azure/microsoft-certified-azure-devops-engineer-expert/course-designing-and-implementing-ms-devops-solutions-intensive-training-az-400