Designing and Implementing Microsoft DevOps solutions

Description

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.

Classroom Registration Price (CHF)
3200
Virtual Classroom Registration Price (CHF)
3000
Course Content
Module 1: Get started on a DevOps transformation journey

- Introduction to DevOps
- Choose the right project
- Describe team structures
- Choose the DevOps tools
- Plan Agile with GitHub Projects and Azure Boards
- Introduction to source control
- Describe types of source control systems
- Work with Azure Repos and GitHub

Module 2: Development for enterprise DevOps

- Structure your Git Repo
- Manage Git branches and workflows
- Collaborate with pull requests in Azure Repos
- Explore Git hooks
- Plan foster inner source
- Manage Git repositories
- Identify technical debt

Module 3: Implement CI with Azure Pipelines and GitHub Actions

- Explore Azure Pipelines
- Manage Azure Pipeline agents and pools
- Describe pipelines and concurrency
- Explore Continuous integration
- Implement a pipeline strategy
- Integrate with Azure Pipelines
- Introduction to GitHub Actions
- Learn continuous integration with GitHub Actions
- Design a container build strategy

Module 4: Design and implement a release strategy

- Introduction to continuous delivery
- Explore release strategy recommendations
- Build a high-quality release pipeline
- Introduction to deployment patterns
- Implement blue-green deployment and feature toggles
- Implement canary releases and dark launching
- Implement A/B testing and progressive exposure deployment

Module 5: Implement a secure continuous deployment using Azure Pipelines

- Create a release pipeline
- Provision and test environments
- Manage and modularize tasks and templates
- Automate inspection of health
- Manage application configuration data
- Integrate with identity management systems
- Implement application configuration

Module 6: Manage infrastructure as code using Azure and DSC

- Explore infrastructure as code and configuration management
- Create Azure resources using Azure Resource Manager templates
- Create Azure resources by using Azure CLI
- Explore Azure Automation with DevOps
- Implement Desired State Configuration (DSC)
- Implement Bicep

Module 7: Implement security and validate code bases for compliance

- Introduction to Secure DevOps
- Implement open-source software
- Software Composition Analysis
- Static analyzers
- OWASP and Dynamic Analyzers
- Security Monitoring and Governance

Module 8: Design and implement a dependency management strategy

- Explore package dependencies
- Understand package management
- Migrate, consolidate, and secure artifacts
- Implement a versioning strategy
- Introduction to GitHub Packages

Module 9: Implement continuous feedback

- Implement tools to track usage and flow
- Develop monitor and status dashboards
- Share knowledge within teams
- Design processes to automate application analytics
- Manage alerts, Blameless retrospectives and a just culture

Lab / Exercises
Official Microsoft Labs:

- Agile planning and portfolio management with Azure Boards
- Version controlling with Git in Azure Repos
- Configuring agent pools and understanding pipeline styles
- Enabling continuous integration with Azure Pipelines
- Integrating external source control with Azure Pipelines
- Implementing GitHub Actions by using DevOps Starter
- Deploying Docker Containers to Azure App Service web apps
- Creating a release dashboard
- Controlling deployments using Release Gates
- Configuring pipelines as code with YAML
- Setting up and running functional tests
- Integrating Azure Key Vault with Azure DevOps
- Azure deployments using Azure Resource Manager templates
- Implement security and compliance in Azure Pipelines
- Managing technical debt with SonarQube and Azure DevOps
- Package management with Azure Artifacts
- Monitoring application performance with Application Insights
- Integration between Azure DevOps and Microsoft Teams
- Sharing Team Knowledge using Azure Project Wikis

Documentation

- Access to Microsoft Learn (online learning content)

Exam

- This course prepares you to the AZ-400: Designing and Implementing Microsoft DevOps Solutions exam. If you wish to take this exam, please contact our secretariat who will let you know the cost of the exam and will take care of all the necessary administrative procedures for you.

Participant profiles

- People interested in designing and implementing DevOps processes or in passing the Microsoft Azure DevOps Solutions certification exam

Prerequisites

- 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

Objectives

- Plan for the transformation with shared goals and timelines
- 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

Niveau

Avancé
Duration (in Days)
4
Reference
AZ-400T00