Training: Microsoft
AZ-400T00 Designing and Implementing Microsoft DevOps solutions

Microsoft Partner

TRAINING GOALS:

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.

After completing the course, students will be able to:

- Plan for the transformation with shared goals and timelines
- Select a project and identify project metrics and Key Performance Indicators (KPI's)
- Create a team and agile organizational structure

Audience profile:

Students in this course are interested in designing and implementing DevOps processes or in passing the Microsoft Azure DevOps Solutions certification exam.

CONSPECT:

- Planning for DevOps
  - Transformation Planning
  - Project Selection
  - Team Structures
  - Migrating to Azure DevOps
- Getting Started with Source Control
  - What is Source Control
  - Benefits of Source Control
  - Types of Source Control Systems
  - Introduction to Azure Repos
  - Introduction to GitHub
  - Migrating from Team Foundation Version Control (TFVC) to Git in Azure Repos

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- Managing Technical Debt
  - Identifying Technical Debt
  - Knowledge Sharing within Teams
  - Modernizing Development Environments with Codespaces
- Working with Git for Enterprise DevOps
  - How to Structure Your Git Repo
  - Git Branching Workflows
  - Collaborating with Pull Requests in Azure Repos
  - Why Care About Git Hooks
  - Fostering Inner Source
  - Managing Git Repositories
- Configuring Azure Pipelines
  - The Concept of Pipelines in DevOps
  - Azure Pipelines
  - Evaluate use of Hosted versus Self-Hosted Agents
  - Agent Pools
  - Pipelines and Concurrency
  - Azure DevOps and Open-Source Projects (Public Projects)
  - Azure Pipelines YAML versus Visual Designer
- Implementing Continuous Integration using Azure Pipelines
  - Continuous Integration Overview
  - Implementing a Build Strategy
  - Integration with Azure Pipelines
  - Integrating External Source Control with Azure Pipelines
  - Set Up Self-Hosted Agents
- Managing Application Configuration and Secrets
  - Introduction to Security
  - Implement a Secure Development Process
  - Rethinking Application Configuration Data
  - Manage Secrets, Tokens, and Certificates
  - Integrating with Identity Management Systems
  - Implementing Application Configuration
- Implementing Continuous Integration with GitHub Actions
  - GitHub Actions
  - Continuous Integration with GitHub Actions
  - Securing Secrets for GitHub Actions

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- Designing and Implementing a Dependency Management Strategy
  - Packaging Dependencies
  - Package Management
  - Migrating and Consolidating Artifacts
  - Package Security
  - Implementing a Versioning Strategy
- Designing a Release Strategy
  - Introduction to Continuous Delivery
  - Release Strategy Recommendations
  - Building a High-Quality Release pipeline
  - Choosing the Right Release Management Tool
- Implementing Continuous Deployment using Azure Pipelines
  - Create a Release Pipeline
  - Provision and Configure Environments
  - Manage and Modularize Tasks and Templates
  - Configure Automated Integration and Functional Test Automation
  - Automate Inspection of Health
- Implementing an Appropriate Deployment Pattern
  - Introduction to Deployment Patterns
  - Implement Blue Green Deployment
  - Feature Toggles
  - Canary Releases
  - Dark Launching
  - AB Testing
  - Progressive Exposure Deployment
- Managing Infrastructure and Configuration using Azure Tools
  - Infrastructure as Code and Configuration Management
  - Create Azure Resources using ARM Templates
  - Create Azure Resources using Azure CLI
  - Azure Automation with DevOps
  - Desired State Configuration (DSC)
- Third Party Infrastructure as Code Tools Available with Azure
  - Chef
  - Puppet
  - Ansible
  - Terraform

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- Managing Containers using Docker
  - Implementing a Container Build Strategy
  - Implementing Docker Multi-Stage Builds
- Creating and Managing Kubernetes Service Infrastructure
  - Azure Kubernetes Service
  - Kubernetes Tooling
  - Integrating AKS with Pipelines
- Implementing Feedback for Development Teams
  - 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
- Implementing System Feedback Mechanisms
  - Site Reliability Engineering
  - Design Practices to Measure End-User Satisfaction
  - Design Processes to Capture and Analyze User Feedback
  - Design Processes to Automate Application Analytics
  - Managing Alerts
  - Blameless Retrospectives and a Just Culture
- Implementing Security in DevOps Projects
  - Security in the Pipeline
  - Azure Security Center
- Validating Code Bases for Compliance
  - Open-Source Software
  - Managing Security and Compliance Policies
  - Integrating License and Vulnerability Scans

REQUIREMENTS:

Before attending this course, students need to have a basic understanding of:

- 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.

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Difficulty level

CERTIFICATE:

Certificate of completing an authorized Microsoft training.

TRAINER:

Microsoft Certified Trainer.

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