

DEVOPS

INTERMEDIATE

2 DAYS

Microsoft Copilot for DevOps Automation

Build a strong foundation in using Microsoft Copilot for DevOps automation, from generating pipelines and scripts to improving documentation and troubleshooting. Learn how to deliver secure CI/CD workflows with approvals, secrets handling best practices, and reusable templates for enterprise-scale standardization.

Why Microsoft Copilot for DevOps Automation?

Faster automation delivery

Teams build pipelines, scripts, and templates faster with Copilot-assisted scaffolding.

Better onboarding

Engineers ramp up faster with guided generation and explanations for DevOps artifacts.

Improved standardization

Create reusable templates and consistent patterns across projects and teams.

More time for engineering

Less time writing repetitive YAML and boilerplate, more time improving reliability and governance.

Reduced operational mistakes

Copilot helps spot common YAML and pipeline issues early when paired with validations and checks.

What you'll be able to do

- ✓ Understand what Microsoft Copilot is and where it fits in DevOps workflows.
- ✓ Use Copilot across Azure DevOps / GitHub workflows, infrastructure automation, scripting, and documentation.
- ✓ Write strong prompts for DevOps outcomes using requirements, context, constraints, and expected outputs.
- ✓ Generate and improve automation artifacts: Azure DevOps YAML, scripts, and starter IaC templates.
- ✓ Troubleshoot real DevOps issues: pipeline failures, broken YAML, authentication issues, and deployment failures.
- ✓ Apply enterprise security practices: secure secrets handling, least privilege automation, and safe defaults.
- ✓ Create reusable templates for standard DevOps workflows.
- ✓ Deliver an end-to-end DevOps automation project using Copilot support.

Who this is for

- DevOps Engineers
- Azure Cloud Engineers
- Platform Engineers
- SRE Teams
- Developers working with automation pipelines
- Teams using Microsoft ecosystem tools (Azure DevOps, GitHub, Microsoft 365)

Curriculum

01 Microsoft Copilot for DevOps (Where It Fits and Why It Matters)

- What Microsoft Copilot is (conceptual overview and capabilities)
- Where Copilot helps DevOps teams (speed, consistency, troubleshooting)
- Copilot usage across DevOps lifecycle (plan → build → deploy → operate)
- What Copilot cannot do (limitations, verification mindset)
- **Hands-on:** Activity: Identify 10 DevOps tasks you can accelerate using Copilot in your team

02 Using Copilot in Azure DevOps and GitHub Workflows

- Copilot in GitHub workflow (PRs, checks, collaboration)
- Copilot for Azure DevOps pipelines (YAML creation and fixes)
- Using Copilot to generate README and runbook documentation
- Structured output formats for DevOps deliverables (YAML, markdown, scripts)
- **Hands-on:** Lab: Generate a CI workflow and improve it for readability and maintainability using Copilot

03 Prompting for DevOps Outcomes (Context, Constraints, Output Specs)

- Prompt structure for DevOps tasks (requirements, inputs, assumptions)
- Adding constraints (tools, versions, environments, security rules)
- Requesting deterministic formats (YAML, bash, PowerShell, Terraform)
- Iteration workflow (draft → validate → refine)
- **Hands-on:** Workshop: Write 10 high-quality prompts for pipelines, scripts, IaC, and troubleshooting

04 Generating Automation Artifacts (YAML, Scripts, Starter IaC)

- Generating Azure DevOps YAML pipeline templates
- Generating automation scripts (bash, PowerShell, Python) for ops tasks
- Generating starter IaC templates (Terraform/Bicep concept)
- Refactoring output into reusable modules and scripts
- **Hands-on:** Lab: Generate Azure DevOps pipeline YAML + deployment script and validate it end-to-end

05 Troubleshooting DevOps Failures with Copilot (Real Scenarios)

- Debugging pipeline failures using logs and error patterns
- Fixing broken YAML (syntax, indentation, variables, conditions)
- Authentication and permission issues (service connections, tokens concepts)
- Deployment failures troubleshooting (timeouts, incorrect configs, missing artifacts)
- **Hands-on:** Lab: Break a pipeline intentionally and use Copilot to debug and fix it step-by-step

06 Enterprise Security Practices (Safe Defaults and Least Privilege)

- Secrets handling practices (never hardcode, use secret stores)
- Least privilege automation (scoped permissions for pipelines)
- Secure defaults in scripts and YAML (fail fast, validate inputs)
- Preventing insecure changes (review and approval patterns)
- **Hands-on:** Lab: Harden a pipeline by adding secrets best practices and restricted permissions

07 Reusable Templates and Standard Workflows (Scaling DevOps Automation)

- Building standardized pipeline templates for common workflows
- Parameterization strategy (env, versions, paths, approvals)
- Reusable steps and tasks (shared pipeline patterns concept)
- Governance and auditability (who changes templates and how)
- **Hands-on: Workshop:** Create a reusable pipeline template for build + deploy with approvals

08 Capstone Project (End-to-End DevOps Automation with Copilot)

- Capstone goal: Deliver a complete DevOps automation workflow with Copilot support
- Build pipeline (lint, test, artifact publish)
- Deploy pipeline (environment approval gate, rollout strategy)
- Troubleshoot and fix at least 2 injected failures
- Deliver documentation (pipeline README + runbook + troubleshooting notes)
- **Hands-on: Capstone Lab:** Build and demo the end-to-end workflow with evidence of Copilot-assisted improvements