

## MS-GH200T00: AUTOMATE YOUR WORKFLOW WITH GITHUB ACTIONS



DURATION	LEVEL	TECHNOLOGY	DELIVERY METHOD	TRAINING CREDITS
1 Day	Intermediate	Microsoft GitHub	Instructor-led	NA

### INTRODUCTION

Learn how GitHub Actions enables you to automate your software development cycle. You'll learn how to plan automation of your software development life cycle with GitHub Actions workflows, use GitHub Actions to automatically build an application, and use GitHub Script to interact with the GitHub API.

### AUDIENCE PROFILE

This course is intended for students who want to use GitHub to help developers and DevOps engineers build and deploy applications quickly. Additionally, students will discover which GitHub Actions features are available for their enterprise instance and learn how to use them.

### PREREQUISITES

Before attending this course, delegates must have:

- A GitHub account – this is essential, as all hands-on work is done within GitHub.
- Basic familiarity with GitHub – you should be comfortable navigating repositories and editing files.
- Introductory knowledge of GitHub Actions and workflows – understanding how workflows are structured and triggered will help you hit the ground running.
- Some experience with continuous integration (CI) – especially using GitHub Actions.
- An Azure subscription – for modules involving deployment to Microsoft Azure.
- A basic understanding of Microsoft Azure Fundamentals – helpful for the Azure deployment sections.

### COURSE OBJECTIVES

After attending this course, delegates will be able to:

- Plan and automate development tasks using GitHub Actions workflows.
- Build and test applications with continuous integration (CI) pipelines.
- Deploy applications to Microsoft Azure using GitHub Actions and manage deployment workflows.
- Use GitHub Script to interact with the GitHub API and automate GitHub itself.
- Create and publish custom GitHub Actions tailored to your organization's needs.
- Manage GitHub Actions in an enterprise environment, including access control and workflow governance.
- Publish packages to GitHub Packages or GitHub Container Registry.

### COURSE CONTENT

#### Module 1: Automate development tasks by using GitHub Actions

Create a basic GitHub Action and use that action in a workflow.

Lessons

- Introduction
- How does GitHub Actions automate development tasks?
- Identify the components of GitHub Actions
- Configure a GitHub Actions workflow
- Exercise - Create and run a basic GitHub Actions workflow
- Module assessment
- Summary

After completing this module, students will be able to:

- Describe GitHub Actions, the types of actions, and where to find them.
- Plan an automation of your software development

lifecycle with GitHub Actions workflows.

- Create a container action and have it run in a workflow triggered by a push event to your GitHub repository.

#### Module 2: Build continuous integration workflows by using GitHub Actions

Learn how to create workflows to add continuous integration (CI) to your projects.

Lessons

- Introduction
- How do I use GitHub Actions to create workflows for CI?
- Customize your workflow with environment variables and artifact data
- Exercise - Create the CI workflow on GitHub
- Module assessment
- Summary

After completing this module, students will be able to:

- Learn essential features and techniques to build robust and dynamic workflows.
- Build and test a Node.js project by using GitHub Actions and a workflow template.
- Debug a failed test by using GitHub Actions logs.
- Customize your workflow by using GitHub Actions.

#### Module 3: Build and deploy applications to Azure by using GitHub Actions

Create two deployment workflows using GitHub Actions and Microsoft Azure.

Lessons

- Introduction
- How do I use GitHub Actions to deploy to Azure?

- Remove artifacts, create status badges, and configure environment protections
  - Exercise - Create a workflow that deploys a web app to Azure
  - Module assessment
  - Summary
- After completing this module, students will be able to:
- Discover options for triggering a continuous delivery GitHub Workflow.
  - Understand steps to remove workflow artifacts.
  - Identify important environment protections.
  - Control workflow execution with job conditionals.
  - Deploy to Microsoft Azure with a GitHub deploy action.
  - Store credentials with GitHub Secrets.
  - Create and destroy Azure resources with GitHub Actions workflows.

#### Module 4: Automate GitHub by using GitHub Script

Learn to interact with the GitHub API from GitHub Actions by using GitHub Script.

Lessons

- Introduction
- What is GitHub Script?
- Exercise - Using GitHub Script in GitHub Actions
- Module assessment
- Summary

After completing this module, students will be able to:

- Use GitHub Script in your workflow.
- Comment on issues by using Octokit.
- Add issues to a project board by using Octokit.
- Use the workflow expression syntax to filter when jobs run in a workflow.

#### Module 5: Leverage GitHub Actions to publish to GitHub Packages

Publish your code libraries or Docker images automatically and securely with GitHub Packages.

You'll also run Docker images published into GitHub Packages locally.

Lessons

- Introduction
- What is GitHub Packages?
- Publish to GitHub Packages and GitHub Container Registry
- Knowledge check
- Exercise - Publish to a GitHub Packages registry
- GitHub Packages for code packages
- Module assessment
- Summary

After completing this module, students will be able to:

- Understand what a Package Repository is and when to use it.
- Set up a Continuous Integration (CI) workflow with GitHub Actions to publish to GitHub Packages.
- Validate your knowledge with an exercise that checks your ability to publish to a GitHub Packages registry.
- Identify how to authenticate, install, and manage GitHub Packages.

#### Module 6: Create and publish custom GitHub actions

Learn how to write your own GitHub actions and identify the metadata, syntax, and workflow commands to create custom workflows. Learn best practices for documenting and versioning your action, and how to publish your action to the GitHub Marketplace.

Lessons

- Introduction
- Create a custom GitHub action
- Publish a custom GitHub action
- Exercise - Create a custom JavaScript GitHub action
- Module assessment
- Summary

By the end of this module, you will:

- Identify the metadata and syntax needed to create custom GitHub actions.

- Learn best practices to publish a private or public GitHub action.
- Consume actions within a workflow file.
- Create custom JavaScript based actions.
- Publish a newly created action to the GitHub Marketplace.

#### Module 7: Manage GitHub Actions in the enterprise

Discover which GitHub Actions features are available for your enterprise instance and learn how to use them.

Lessons

- Introduction
- Understanding GitHub enterprise models
- Manage actions and workflows
- Control access and usage of actions in your enterprise
- Managing and leveraging reusable components in GitHub Actions
- Manage runners
- Configure self-hosted runners for enterprise use
- Manage encrypted secrets
- Exercise - Use a repository secret in a GitHub Actions workflow
- Module assessment
- Summary

By the end of this module, you're able to:

- Identify the different tools you can use at enterprise and organization levels to manage your actions and workflows.
- Evaluate what the appropriate runners are for your enterprise instance.
- Discover the different configurations available for self-hosted runners and customize them according to your enterprise use case.
- Understand what encrypted secrets are and how to use them in your actions and workflows.

## ASSOCIATED CERTIFICATIONS & EXAM

This course will prepare delegates to write the GitHub Actions exam.