DevOps Foundations: The Core Principles and Practices Training

Duration: **1 Day**

BILGINC IT Academy
info@bilginc.com
bilginc.com

DevOps Foundations: The Core Principles and Practices is an introductory course designed to help organizations strengthen collaboration between software development and IT operations teams while adopting modern DevOps practices. The programme introduces the fundamental principles of DevOps and explores the processes, tools, and workflows that support efficient software delivery throughout the application lifecycle.

Throughout the course, participants will use **GitHub** to explore how collaboration, Continuous Integration (CI), Continuous Delivery (CD), automation, and agile development practices contribute to faster software delivery, improved operational stability, and enhanced team productivity.

The programme also introduces modern DevOps concepts including Agile planning, Infrastructure as Code (IaC), observability, Site Reliability Engineering (SRE), and Platform Engineering, providing participants with a practical understanding of how these practices improve software quality, operational resilience, and developer experience.

Prerequisites

Participants are recommended to have:

- An active **Microsoft Azure** subscription (participants should bring their own subscription).
- A basic understanding of IT terminology and fundamental Information Technology concepts.

Who Should Attend

This course is designed for:

- Software developers.
- DevOps engineers.
- Security engineers.
- Security Operations Analysts.
- Solution Architects.
- Technical support and student support engineers.
- IT professionals adopting modern DevOps practices.

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What You Will Learn

Upon successful completion of this course, participants will be able to:

- Apply DevOps principles such as collaboration, automation, agility, and continuous learning to optimize the software development lifecycle.
- Plan Agile software projects using GitHub Projects while promoting collaboration and shared ownership across teams.
- Implement version control using Git and GitHub, together with Continuous Integration (CI), Shift-Left Testing, and Shift-Left Security practices.
- Build and manage Continuous Integration and Continuous Delivery (CI/CD) pipelines using GitHub Actions.
- Apply Infrastructure as Code (IaC) principles to automate infrastructure deployment and management.
- Improve operational excellence through Shift-Right Testing, observability, performance monitoring, and security monitoring.
- Explain the role of Site Reliability Engineering (SRE) and Platform Engineering in improving system reliability and developer productivity.

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Training Outline

Module 1 - Discover DevOps

- Introduction to DevOps
- Core principles of DevOps culture
- DevOps goals and organizational benefits
- The role of DevOps throughout the application lifecycle
- Building a collaborative, agile, and automated development culture

Module 2 - Planning with DevOps

- Agile software development principles
- Planning projects within a DevOps culture
- Using GitHub Projects for planning and collaboration
- Improving teamwork and shared ownership
- Supporting continuous improvement through Agile planning

Module 3 - Developing with DevOps

- Source code management and version control
- Version control using Git
- Understanding the GitHub Flow
- Continuous Integration (CI)
- Implementing Shift-Left Testing
- Applying Shift-Left Security practices
- Managing development workflows with GitHub

Module 4 - Delivering with DevOps

- Continuous Delivery (CD)
- Infrastructure as Code (IaC)
- Progressive deployment techniques
- Building CI/CD pipelines with GitHub Actions
- Automating infrastructure using GitHub Actions and Bicep
- Accelerating reliable software delivery

Module 5 - Operating with DevOps

- Achieving operational excellence
- Implementing Shift-Right Testing
- Performance monitoring and observability
- Security monitoring and assessment
- Applying Site Reliability Engineering (SRE)
- Improving developer experience through Platform Engineering
- Enhancing workload resilience with Azure Traffic Manager and Azure Chaos Studio