

LINUX,AZURE CLOUD & DEVOPS SYLLABUS

LINUX

Linux Fundamentals

Basic Linux commands (ls, cd, cp, mv, rm, etc.)

File and directory permissions (chmod, chown, chgrp)

Text processing commands (cat, grep, awk, sed)

File management and editing (nano, vi, vim)

Package management (apt, yum, dnf)

System Administration

User and group management (useradd, usermod, groupadd)

Process management (ps, top, kill, nice, renice)

System monitoring and performance tuning (top, htop, vmstat, iostat, netstat)

Log management (system logs, logrotate)

Networking

Basic networking commands (ifconfig, ip, ping, traceroute, netstat, ss)

Configuring network interfaces

Network services (SSH, FTP, NFS, HTTP/HTTPS)

Understanding and configuring firewalls (iptables, ufw)

Scripting and Automation

Writing shell scripts (Bash scripting basics)

Automating tasks with cron jobs

Using tools like Ansible, Puppet, or Chef for configuration management

Version Control

Basic Git commands and workflows (clone, commit, push, pull, branch)

Containers and Virtualization

Introduction to Docker (images, containers, Dockerfiles, Compose)

Basic Kubernetes concepts (pods, deployments, services)

Security

Understanding basic Linux security practices

User permissions and access control

Secure file transfer (SCP, SFTP)

System Configuration and Management:

Configuring and managing services (systemd, service commands)

Understanding and managing systemd units and services

Managing software installations and updates

AZURE CLOUD

Azure Fundamentals

Introduction to Azure services and architecture

Understanding Azure regions, availability zones, and resource groups

Basic Azure CLI and Azure PowerShell commands

Azure Resource Management

Creating and managing Azure resources (VMs, storage, databases)

Understanding Azure Resource Manager (ARM) templates

Using Azure Portal for resource management

Infrastructure as Code (IaC)

Writing and managing ARM templates

Introduction to Azure Bicep for simplified IaC

Implementing Terraform for Azure infrastructure management

Deployment and Automation

Configuring and using Azure DevOps for CI/CD pipelines

Setting up and managing build and release pipelines

Deploying applications with Azure App Services and Azure Kubernetes Service (AKS)

Implementing Infrastructure Deployment with Azure Blueprints

Monitoring and Logging

Configuring Azure Monitor and Log Analytics

Setting up alerts and diagnostics

Analyzing and visualizing logs and metrics

Networking

Understanding Azure Virtual Networks (VNETs) and Subnets

Configuring Azure Load Balancer and Application Gateway

Setting up VPN Gateway and ExpressRoute

Security and Compliance

Managing Azure Active Directory (AAD) and roles

Configuring Azure Security Center and Azure Policy

Implementing role-based access control (RBAC) and key vault management

Backup and Disaster Recovery

Configuring Azure Backup for data protection

Setting up Azure Site Recovery for disaster recovery

Containers and Orchestration

Managing containers with Azure Container Instances (ACI)

Working with Azure Kubernetes Service (AKS)

Implementing containerized CI/CD pipelines

Advanced Topics

Implementing serverless computing with Azure Functions

Using Azure Logic Apps for workflow automation

Exploring Azure DevTest Labs for environment management

DEVOPS

Introduction To DevOps

Overview of DevOps and its history

Key concepts and principles of DevOps

Importance of DevOps in modern software development

The role of DevOps in the software development life cycle (SDLC)

DevOps tools and technologies

Source Code Maagement With Git

Introduction to Git and version control

Setting up a Git repository

Basic Git commands and workflows

Collaborating with other developers using Git

Git branching and merging strategies

Managing Git repositories in the cloud (e.g. GitHub, GitLab)

Continuous Integration And Deployment With Jenkins

Overview of Jenkins and continuous integration

Setting up a Jenkins environment

Configuring builds, tests, and deployments in Jenkins

Managing and organizing builds in Jenkins

Integrating Jenkins with other DevOps tools and technologies

Infrastructure as Code With Terraform

Overview of Terraform and infrastructure as code

Writing Terraform code to manage infrastructure

Managing resources, dependencies, and state in Terraform

Integrating Terraform with other DevOps tools and technologies

Containerization With Docker

Overview of Docker and containers

Setting up a Docker environment

Creating and managing Docker images and containers

Integrating Docker with other DevOps tools and technologies

Container Orchestration With Kubernetes

Overview of Kubernetes and container orchestration

Setting up a Kubernetes environment

Creating and managing Kubernetes objects (e.g. pods, services, deployments)

Integrating Kubernetes with other DevOps tools and technologies

Monitoring and Alerting With Grafana

Overview of Grafana and monitoring

Setting up a Grafana environment

Configuring data sources, dashboards, and alerts in Grafana

Integrating Grafana with other DevOps tools and technologies

Configuration Management with Ansible

Overview of Ansible and configuration management

Writing Ansible playbooks to automate infrastructure and application deployment

Managing hosts and inventories in Ansible

Integrating Ansible with other DevOps tools and technologies

Project Management With Azure Devops

Overview of Azure DevOps and agile project management

Setting up a project in Azure DevOps

Configuring work items, boards, and backlogs in Azure DevOps

Integrating Azure DevOps with other DevOps tools and technologies

DevOps Best Practices and Case Studies

Best practices for DevOps, including continuous delivery, testing, and security

Real-world DevOps case studies and examples

Discussion of current and future trends in DevOps