AZURE COMPLETE ROADMAP FOR CLOUD STUDENTS

STAGE 0: SETUP & FOUNDATION (DAY 01)

- Create an Azure account and activate your free credits.

- Explore the Azure Portal UI, dashboards, and quick create options.

- Understand what Resource Groups are and how they help organize your resources.

- Learn about Azure regions and availability zones and how to pick the right one.

- Familiarize yourself with resource SKUs, locations, and subscriptions.

STAGE 1: CORE IAAS VMS & NETWORKING (DAY 25)

- Create and configure Linux and Windows VMs.

- Access VMs using SSH (Linux) or RDP (Windows).

- Attach and mount additional data disks.

- Open necessary ports like SSH, HTTP, and RDP using Network Security Groups (NSGs).

- Understand the difference between public and private IPs, and manage IP settings.

- Use auto-shutdown schedules to save cost and apply tags for resource management.

- Create snapshots and backup OS disks before making changes.

STAGE 2: STORAGE BLOBS, FILES, QUEUES (DAY 68)

- Create and configure storage accounts for different use cases.

- Use Blob storage to upload and manage files in containers.

- Configure access levels: Private, Blob, and Container.

- Use File Storage to mount SMB shares in Linux or Windows VMs.

- Host static websites directly from Blob Storage.

- Understand redundancy models like LRS, GRS, and ZRS.

- Use hot, cool, and archive tiers to optimize cost.

- Create lifecycle management rules for automatic data transition.

STAGE 3: IDENTITY & ACCESS MANAGEMENT (IAM) (DAY 910)

- Learn Azure Active Directory (AAD) basics: users, groups, and directory structure.

- Assign RBAC roles such as Reader, Contributor, and Owner to resources.

- Use Managed Identities to allow Azure services to authenticate securely.

- Store secrets, keys, and credentials in Azure Key Vault.

- Apply least privilege principles to secure your environment.

AZURE COMPLETE ROADMAP FOR CLOUD STUDENTS

STAGE 4: MONITORING, ALERTS & AUTOMATION (DAY 1113)

- Monitor key metrics like CPU usage, disk I/O, and network traffic.

- Create alerts to notify admins when thresholds are crossed.

- Enable diagnostic logs for deep resource insights.

- Schedule auto shutdown and startup of VMs to save costs.

- Create Automation Accounts for tasks like cleanup and scaling.

STAGE 5: PLATFORM SERVICES (PAAS) (DAY 1417)

- Deploy and manage applications using Azure App Services.

- Set up Azure SQL as a managed relational database.

- Use Azure Functions to run serverless logic on demand.

- Automate tasks and data flow using Logic Apps.

- Understand scaling, SLAs, and availability in PaaS environments.

STAGE 6: AZURE CLI + ARM TEMPLATES + BICEP (DAY 1820)

- Use Azure CLI for creating and managing resources.

- Write ARM Templates (JSON format) to define infrastructure.

- Use Bicep as a simplified alternative to ARM for Infrastructure as Code.

- Deploy reproducible environments using deployment scripts.

- Pass parameters and outputs in IaC deployments.

STAGE 7: DEVOPS + GITHUB INTEGRATION (DAY 2124)

- Create Azure DevOps Pipelines for automated builds and deployments.

- Integrate GitHub Actions to deploy apps to Azure services.

- Set up multi-stage environments: Development QA Production.

- Implement testing, approvals, and rollback strategies in pipelines.

- Understand GitOps and build agent concepts.

STAGE 8: AI/ML + CONTAINERS (OPTIONAL)

- Use Azure ML Studio for training, tracking, and deploying ML models.

- Run Docker containers using Azure Container Instances (ACI).

- Deploy scalable containerized applications using Azure Kubernetes Service (AKS).

AZURE COMPLETE ROADMAP FOR CLOUD STUDENTS

- Create API endpoints for deployed models.

- Integrate Azure AI services and OpenAI models if needed.

FINAL PROJECTS

- Deploy a personal or portfolio website using App Services and Blob Storage.

- Create and deploy a RAG chatbot using VMs and Azure OpenAI.

- Train and deploy ML models on Azure ML Studio using Jupyter notebooks.

- Automate VM backups and restoration using snapshots and scripts.

- Build and test a full CI/CD pipeline using GitHub and Azure.

CERTIFICATIONS

- Take AZ-900 (Azure Fundamentals) after Stage 2 for a beginner certification.

- Prepare for AZ-104 (Azure Administrator Associate) after completing Stage 5.

- Optionally explore AZ-204 (Developer), DP-100 (Data Scientist), or AI-900 (AI Fundamentals) based on your path.