

Montgomery County Community College  
 CIS 204  
 Azure Cloud Administrator  
 3-2-2

**COURSE DESCRIPTION:**

This course is designed to develop skills in Azure Cloud computing administration. Specific training will be provided in the following technical tasks: manage Azure identities and governance; implement and manage storage; deploy and manage Azure compute resources; configure and manage virtual networking; and monitor and back up Azure resources. This course will help students prepare for the Azure Cloud Administrator exam.

**PREREQUISITE(S):**

CIS 203: Azure Cloud Fundamentals

CIS 158: Microsoft Server Administration and Support

**LEARNING OUTCOMES:**

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

LEARNING OUTCOMES	LEARNING ACTIVITIES	EVALUATION METHODS
1. Manage Azure identities and governance.	Lecture/Discussion Homework Assignments Assigned readings Hands-on labs/simulations	Discussion/Questions Projects Tests/Quizzes Case Studies
2. Implement storage strategies within an Azure computing environment.	Lecture/Discussion Homework Assignments Assigned readings Hands-on labs/simulations	Discussion/Questions Projects Tests/Quizzes Case Studies
3. Demonstrate how to deploy Azure compute resources.	Lecture/Discussion Homework Assignments Assigned readings Hands-on labs/simulations	Discussion/Questions Projects Tests/Quizzes Case Studies
4. Configure virtual networking.	Lecture/Discussion Homework Assignments Assigned readings Hands-on labs/simulations	Discussion/Questions Research presentations Tests/Quizzes Case Studies
5. Monitor and back up Azure resources.	Lecture/Discussion Homework Assignments Assigned readings Hands-on lab simulations	Discussion/Questions Project presentations Tests/Quizzes Case Studies
6. Prepare for taking an industry standard exam.	Lecture/Discussion Practice Tests	Tests/Quizzes

At the conclusion of each semester/session, assessment of the learning outcomes will be completed by course faculty using the listed evaluation method(s). Aggregated results will be submitted to the Director of Educational Effectiveness. The benchmark for each learning outcome is that *70% of students will meet or exceed outcome criteria.*

**SEQUENCE OF TOPICS:**

1. Foundational Knowledge
  - Apply and monitor infrastructure standards with Azure Policy
  - Introduction to Azure Virtual Machines
  - Fundamentals of computer networking and networking security
  - Control Azure services with the CLI
  - Automate Azure tasks using scripts with PowerShell
  - Secure your identities by using Azure Active Directory
  - Docker containers
  - Choosing a data storage approach in Azure
2. Manage identities and governance in Azure
  - Create users and groups in Azure Active Directory
  - Manage users and groups in Azure Active Directory
  - Password management
  - Secure your Azure resources with role-based access control (RBAC)
  - Create custom roles for Azure resources with role-based access control
  - Control and organize Azure resources with Azure Resource Manager
  - Predict costs and optimize spending for Azure
  - Analyze costs and create budgets with Azure Cost Management
  - Move Azure resources to another resource group
  - Manage device identity with Azure AD join and Enterprise State Roaming
3. Implement and manage storage in Azure
  - Create an Azure storage account
  - Choose the right disk storage for your virtual machine workload
  - Secure your Azure Storage account
  - Provide disaster recovery by replicating storage data across regions and failing over to a secondary location
  - Store and share files in your app with Azure Files
  - Upload, download, and manage data with Azure Storage Explorer
  - Export large amounts of data from Azure by using Azure Import/Export
  - Move large amounts of data to the cloud by using Azure Data Box family
  - Extend your on-premises file share capacity using Azure File Sync

4. Deploy and manage compute resources
  - Create a Windows virtual machine in Azure
  - Manage virtual machines with the Azure CLI
  - Add and size disks in Azure virtual machines
  - Secure your Azure virtual machine disks
  - Keep your virtual machines updated
  - Build Azure Resource Manager templates
  - Deploy Azure virtual machines from VHD templates
  - Build a scalable application with virtual machine scale sets
  - Protect your virtual machine settings with Azure Automation State Configuration
  - Deploy and run a containerized web app with Azure App Service
  - Scale an App Service web app to efficiently meet demand with App Service scale up and scale out
  - Run Docker containers with Azure Container Instances
  - Introduction to Azure Kubernetes Service
5. Configure and manage virtual networks for Azure administrators
  - Design an IP addressing schema for your Azure deployment
  - Distribute your services across Azure virtual networks and integrate them by using virtual network peering
  - Secure and isolate access to Azure resources by using network security groups and service endpoints
  - Connect to virtual machines through the Azure portal by using Azure Bastion
  - Host your domain on Azure DNS
  - Manage and control traffic flow in your Azure deployment with routes
  - Connect your on-premises network to Azure with VPN Gateway
  - Connect your on-premises network to the Microsoft global network by using ExpressRoute
  - Load balance your web service traffic with Application Gateway - Learn | Microsoft Docs  
Improve application scalability and resiliency by using Azure Load Balancer
  - Troubleshoot inbound network connectivity for Azure Load Balancer
  - Monitor and troubleshoot your end-to-end Azure network infrastructure by using network monitoring tools
6. Azure Implementation case studies
7. Taking the Azure Cloud Administrator Exam

LEARNING MATERIALS:

Microsoft Azure Administrator – Exam Guide AZ-103

Author: Sjoukje Zaal Publisher: Packt Publishing, May 2019 ISBN: 978-1838829025

***Pending update to AZ-104***

Microsoft Azure Administrator AZ-104: Microsoft Azure Administrator AZ-104 Latest Practice Questions, Author: Eaze Teach, Independently published, October 2020 ISBN: 979-8693484719

Microsoft Learning Path: [Exam AZ-104: Microsoft Azure Administrator - Learn | Microsoft Docs](#)

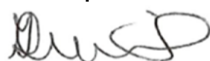
COURSE APPROVAL:

Revised by: Marie Hartlein

Date: 12/1/2020

VPAA or designee Compliance Verification:

Date: 4/27/2021



*This course is consistent with Montgomery County Community College's mission. It was developed, approved and will be delivered in full compliance with the policies and procedures established by the College.*