

## Purpose

This document is for Microsoft Certified Trainers preparing to teach the AZ-104 Microsoft Azure Administrator course. This course is designed for students who are planning to take the associated certification exam, or students who are performing Azure administrator tasks in their day-to-day job.

## Azure Administrator Role Definition

Both the certification exam and the courseware are based on the Azure Administrator role.

- The Azure Administrator implements, manages, and monitors identity, governance, storage, compute, and virtual networks in a cloud environment.
- The Azure Administrator will provision, size, monitor, and adjust resources as appropriate.

Remember there are other roles, such as DevOps and Solutions Architect.

## Audience

This course is for Azure Administrators. Azure Administrators manage the cloud services that span storage, networking, and compute cloud capabilities, with a deep understanding of each service across the full IT lifecycle. They take end-user requests for new cloud applications and make recommendations on services to use for optimal performance and scale, as well as provision, size, monitor and adjust as appropriate. This role requires communicating and coordinating with vendors. Azure Administrators use the Azure Portal and as they become more proficient, they use PowerShell and the Command Line Interface.

## Prerequisites

Successful Azure Administrators start this role with experience on operating systems, virtualization, cloud infrastructure, storage structures, and networking. This knowledge includes:

- Understanding of on-premises virtualization technologies, including: VMs, virtual networking, and virtual hard disks.
- Understanding of network configuration, including TCP/IP, Domain Name System (DNS), virtual private networks (VPNs), firewalls, and encryption technologies.
- Understanding of Active Directory concepts, including users, groups, role-based accessed control.

- Understanding of resilience and disaster recovery, including backup and restore operations.

✓ There is a [AZ-104: Prerequisites for Azure administrators - Learn | Microsoft Docs](#) learning path.

## Certification Exam

Certification exams measure your ability to accomplish certain technical tasks for a job role. The study areas are based on the Job Task Analysis that was conducted for the role in January 2022.

Each study area has a percentage indicating the relative weight of the area on the exam. The higher the percentage, the more questions you are likely to see in that area.

Study Area	Percentage
Manage Azure identities and governance	15-20%
Implement and manage storage	15-20%
Deploy and manage Azure compute resources	20-25%
Configure and manage virtual networking	25-30%
Monitor and backup resources	10-15%

Candidates should have a minimum of six months of hands-on experience administering Azure. Candidates should have a strong understanding of core Azure services, Azure workloads, security, and governance. Candidates for this exam should have experience in using PowerShell, the Command Line Interface, Azure Portal, and ARM templates.

✓ For more information, on the skills measured in the exam, please visit the [AZ-104 Microsoft Azure Administrator certification page](#).

## Preparing to Teach

In the next sections we will cover the main course components and how they can be used in class. There is a lot of flexibility in how you use this content to create the best learning experience for your students.

## Content

The content for your course is organized into Modules, Lessons, and Topics. There are 11 modules.

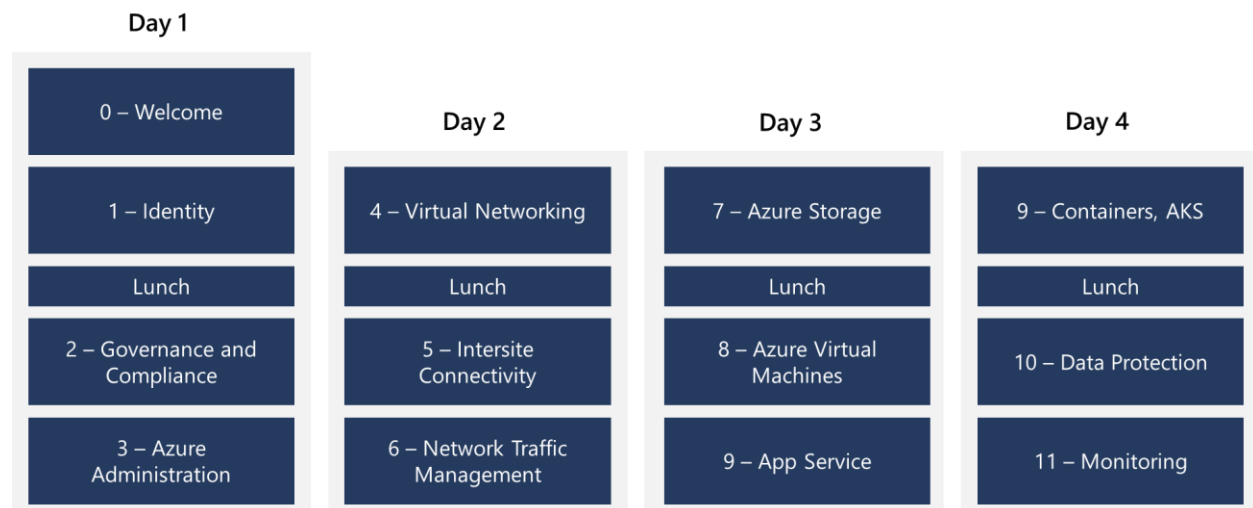
✓ This is a suggested order. Always ensure you are covering the content most applicable to your audience.

- 01 – Administer Identity
- 02 – Administer Governance and Compliance
- 03 – Administer Azure Resources
- 04 – Administer Virtual Networking
- 05 – Administer Intersite Connectivity
- 06 – Administer Network Traffic Management
- 07 – Administer Azure Storage
- 08 – Administer Virtual Machines
- 09 – Administer Serverless Computing
- 10 – Administer Data Protection
- 11 – Administer Monitoring

- ✓ There is a Change Log, AZ-104T00A-ENU-ChangeLog, which provides detailed information on how this course has changed over time. The Change Log is updated for each course release.
- ✓ A detailed course outline, AZ-104T00A-ENU-CourseDatasheet, is provided in the MCT LDC.

## Timing

Module 00 has a slide with a proposed schedule. You should adjust this schedule to your classroom situation.



## Labs

Labs are provided for each module. The lab instructions are in the AZ-104 [Microsoft Learning GitHub](#) repository. Supplemental files, like scripts and templates, are also provided.

To complete the labs, you will need:

- An internet connection to the Azure portal.
  - An Azure subscription.
- ✓ Hosted lab machines may be available for an additional charge.
- ✓ If you have lab feedback, create an Issue on the lab GitHub repository.
- ✓ The Summary and Resources slide shows if Learn **sandboxes are available**. These sandboxes can be used to supplement the GitHub labs.

## PowerPoint Slides

Each module has a PowerPoint deck. Each course topic has a PowerPoint slide. Module overview and lesson overview slides are included so you can introduce the content to your students.

- ✓ The Overview slide includes (in the Notes) the certification topics that are covered.

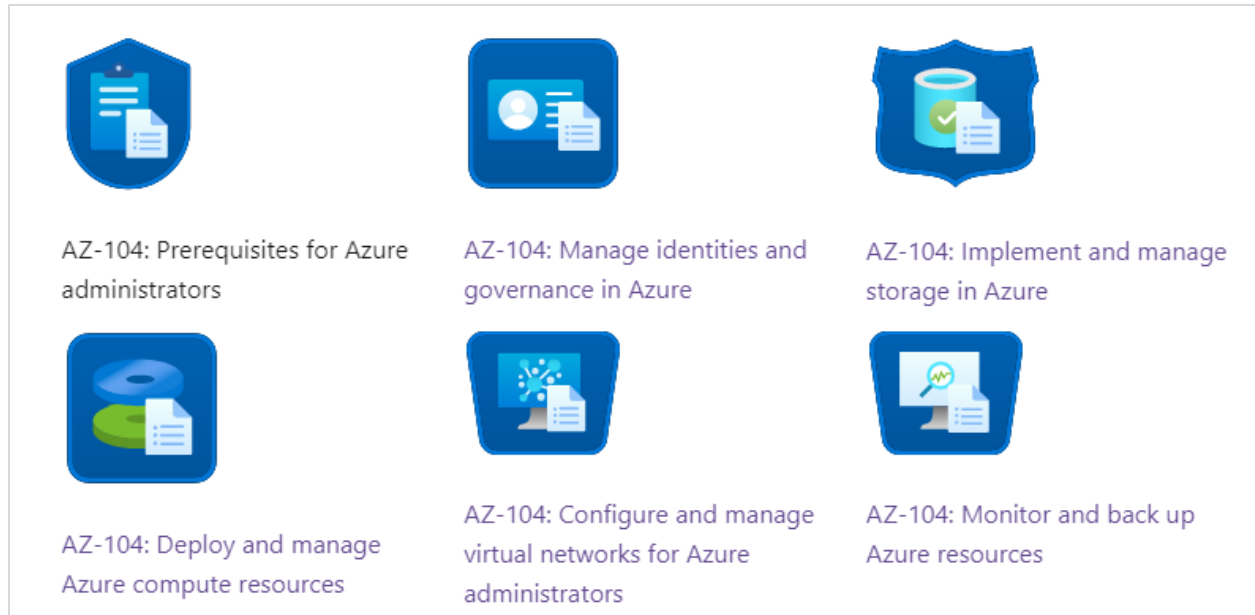
## Microsoft Educator Materials

This course supports the [Microsoft Learn for Educators Program](#). The Download Center includes several files to support this program. You do not need to download these files, but you may find the files helpful in teaching the course.

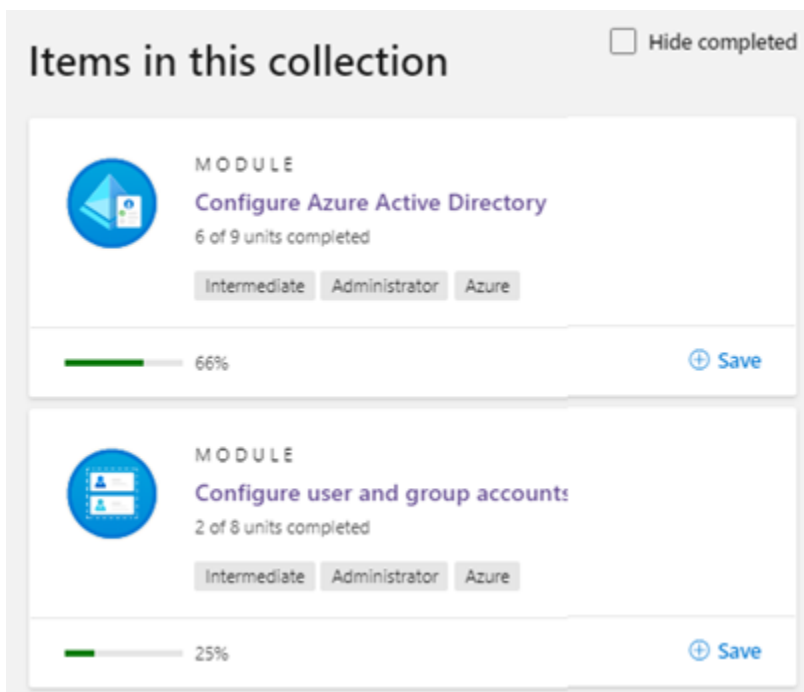
- **AZ-104T00-ENU-Course-Datasheet.** Provides course description, audience, learning objectives, exam areas, and extended course outline.
  - **AZ-104T00-ENU-AssessmentGuide.** Provides instructions on how to use Microsoft Forms for multiple choice questions. The forms have already been populated with questions and you can change what is provided. Also, five open-ended questions for each module are included. You can use these as review questions in the classroom.
  - **AZ-104T00A-ENU-Virtual\_Educator\_Prep\_Session.** Summarizes the course and prepares educators to teach the Microsoft curriculum to their students.
- ✓ This program provides a [Get tips and tricks for teaching AZ-104 Microsoft Azure Administrator - Learn | Microsoft Docs](#) module.

## Microsoft Learn content

Student content is available on [Microsoft Learn](#). For self-paced users there are six AZ-104 Learning Paths.



All the modules in the course are listed on the [Course AZ-104T00--A: Microsoft Azure Administrator - Learn | Microsoft Docs](#) page. Students can bookmark the page and follow along. There is a checkbox to hide completed modules.



Module 00 has slides to explain how the content can be used in the classroom. This includes a slide to show how students can provide feedback to the Learn content. All feedback is tracked, and changes are quickly incorporated. As an instructor you can also use this to submit fixes.





**Student content feedback on Learn**

*Scroll to the bottom of the online page*

Need help? See our [troubleshooting guide](#) or provide specific feedback by [reporting an issue.](#)

**Report feedback**

Select the type of feedback \*

 Product or functionality	 Learning content quality	 Feature request	 General feedback
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[Submit](#) [Clear form](#)

- ✓ Students do not need to create a Learn profile to use the content. But, if they create a profile Learn will track their progress and they will receive badges for completing the content.

## Azure Subscriptions

To complete the labs and any additional demonstration exercises in this course, students will need an Azure Subscription. If you are not using a hosted lab environment, you can request [request Microsoft Learning Azure Passes](#) for yourself and your students. Ensure that you request these passes at least two weeks before the class starts. After receiving the passes each student will need to activate their pass.

- ✓ The Azure pass effectively functions in the same way as the [publicly available Microsoft Azure Trial Subscription](#). This means there are limitations on what you can do with the pass.

## Portal, Cloud Shell, PowerShell, and the CLI

The lab instructions are written to use the Cloud Shell. The Cloud Shell automatically connects to Azure and provides access to PowerShell and the CLI.

If you would rather have students use PowerShell or the CLI locally, you can use these links.

- [Install Azure PowerShell on Windows with PowerShellGet](#)
  - [Install Azure CLI on Windows](#)
- ✓ Module 03, Azure Administration, has an excellent overview of common Azure Administrator tools including Azure portal, Azure PowerShell, Cloud Shell, Azure CLI, and ARM templates. There are demonstrations that you can use to ensure your students are ready for the labs.

## Demonstrations

This course has numerous demonstrations. Take the time to work through each one and decide which to use. Some of the demonstrations are simple show and tell walk-throughs of the Azure portal; others require scripting skills.

Consider having the students do the demonstrations themselves, or walk-through as a group. You might also consider using the demonstration instead of the slides. Lastly, consider the overlap with the formal labs and make the best use of your time.

- ✓ All the demonstrations are in a document, AZ-104T00A-ENU-Demonstrations, in the MCT DLC.

## Group Discussions

Included throughout the content are questions designed to help students reflect on what they have learned or emphasize some important point. When you see a Note, you have a chance to interact with your students and engage them in discussion. For example,

**Note:** Has your organization implemented users and groups?

## Knowledge Check and Assessment Questions

Review questions are provided throughout the course to check the student's knowledge. You can use these review questions in several ways:

- Have the students' pre-test before the course starts and then at the end to see what they have learned.
  - As a group, go through the questions before moving on to another section.
  - Sprinkle the questions into the content as you cover the related material.
- ✓ Note these questions are not at the level of the certification exam. You may wish to supplement with questions of your own choosing.

Additionally, this course provides an interactive way to use [Microsoft Forms](#) for the knowledge check questions. Microsoft Forms is free and easy to use. If you aren't familiar with the product, short [support videos](#) are available. Review question quizzes have already been created for you, simply:

1. Select each of the following URLs, and then **Duplicate it**. This will create a personal copy of the quiz, which you can edit. For example, you could add a company logo to the top.
2. **Share** the quizzes with the **anyone with the link can respond** option. This means signing in to complete the quiz is not required.
3. Provide the shared URLs to your students and use the **Responses** tab to review the answers.

## Quiz templates

- [Module 01, Identity](#)
  - [Module 02, Governance and Compliance](#)
  - [Module 03, Azure Administration](#)
  - [Module 04, Virtual Networking](#)
  - [Module 05, Intersite Connectivity](#)
  - [Module 06, Network Traffic Management](#)
  - [Module 07, Azure Storage](#)
  - [Module 08, Azure Virtual Machines](#)
  - [Module 09, Serverless Computing](#)
  - [Module 10, Data Protection](#)
  - [Module 11, Monitoring](#)
- ✓ As a best practice it is recommended you create a new quiz and delete the old quiz each class. This will keep the response URLs from being circulated and responses continuing to come in after class.
- ✓ The educator materials, AZ-104T00-ENU-AssessmentGuide, also include open-ended discussion questions.

## Microsoft Learn - Additional Study Resources

At the end of each module is a slide with applicable Microsoft Learn modules. These modules can be used as additional study opportunities.

## References

There are a lot of resources to help you and the student learn about Azure. We recommend you bookmark these pages. The list is included in the Welcome section of the student materials.

- [AZ-104 Prerequisites for Azure administrators \(Learn\)](#)
- [AZ-104: Manage identities and governance in Azure - Learn | Microsoft Docs](#)
- [AZ-104: Implement and manage storage in Azure - Learn | Microsoft Docs](#)
- [AZ-104: Configure and manage virtual networks for Azure administrators - Learn | Microsoft Docs](#)
- [AZ-104: Deploy and manage Azure compute resources - Learn | Microsoft Docs](#)
- [AZ-104: Monitor and back up Azure resources - Learn | Microsoft Docs](#)
- [Azure Documentation](#) . Stay informed on the latest products, tools, and features. Get information on pricing, partners, support, and solutions.



- [Azure forums](#) . The Azure forums are very active. You can search the threads for a specific area of interest. You can also browse categories like Azure Storage, Pricing and Billing, Azure Virtual Machines, and Azure Migrate.
- [Microsoft Learning Community Blog](#) . Get the latest information about the certification tests and exam study groups.
- [Microsoft Azure Blog](#) . Keep current on what's happening in Azure, including what's now in preview, generally available, news & updates, and more.

## Connect with Others

- [MCT Central](#). Your one stop for all things MCT. Stay up to date with the latest MCT news, learn about upcoming events, find job opportunities, or connect with other MCTs around the world. You can also ask questions and discuss a variety of topics including courseware and certification with Microsoft and other MCTs through the MCT Central Forums.
- [MOC Courseware Support](#). If there are problems with a course or you need to log a support ticket, contact the Official Support channel for MOC courses. This channel is monitored by support agents and is the quickest way to log your course support issue.

## Feedback

In this course we have provided a framework for you to work with. Take time to prepare and think about the value that only an instructor can bring to training. We hope to partner with you to provide an exceptional student experience and we welcome your feedback.

## Appendix – Tips for teaching AZ-104

Are you looking to improve when teaching AZ-104? Maybe you don't teach the course very often or you haven't taught the course before? If so, this document offers some tips from our top trainers to help you deliver the best course possible.

We created this document because we recently conducted a survey of the AZ-104 Metrics that Matters responses. Overall, the comments were very positive and the NSAT rating high. However, there are always opportunities for improvement.

So, here are three specific areas we would like to highlight: **course timing**, **hands-on labs**, and **classroom interactivity**.

### Course timing

#### Typical Comments:


*Course timing is too tight, days ran too long, pace is too fast, course should be five days instead of four days, and not enough time to absorb the material.*


#### Discussion:

AZ-104 provides a lot of content for you to select from based on your audience and teaching style. **It is not intended** that you cover every slide, demo, lab, discussion, and review question.

You must select the combination of course elements that fit best within the allotted classroom time. Consider your audience, consider your ability to tell the story, and consider the depth of coverage.

Here is how two different instructors presented the material. Notice they do not follow the prescribed course sequence and have selected content based on their teaching style.

Persona	Course timing approach
 Instructor 1	I use the PPT slides during a course as a guideline and hide slides that I will whiteboard or demo. I use a lot of demonstrations and often include simple portal walk-throughs I've created myself. And I do a lot of whiteboarding to cover concepts and flowcharts. I survey the class and spend more time on product areas where the students are most interested.

 Instructor 2	I start each lesson with a description of an Administrator task and then show the steps in the portal. For example, adding users and groups. As I go through the demo, I describe the content covered in the slides. For example, the types of users and groups. After the demo I quickly skimmed the slides, making sure everything was covered and there weren't any questions. I use the Summary slide to point students to other study materials available on Learn.
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**Summary:**

To improve in this area, we ask that you fit the course to your audience and teaching style. Plan your time and set the students' expectations of what will be covered and how it will be covered. You do not have to cover everything that is provided. It is better to cover a few things well than a lot of things incompletely.





**Hands-on Labs****Typical Comments:**

*Labs are too complicated, labs are too lengthy, labs should be more real world, labs should follow the lecture, and lab steps do not match the Azure portal.*

**Discussion:**

AZ-104 provides GitHub labs for each module. These labs assume a level of familiarity with the Azure portal and scripting. This is not always the case, which means you need to consider your audience and their ability to complete various labs.

Here are how some of our top trainers approach the lab time.

Persona	Lab approach
 Instructor 1	Some students come to class without meeting the prerequisites. They may have little or no experience with Azure. I know these students will need more time to complete a lab, so I account for that. I provide extra time by skipping labs 01, 05, 10, 11. I ensure these areas are covered instead by demonstrations. And I do all the labs directly after the module to reinforce the learning.
 Instructor 2	I start with the Module 03 (Administration) labs and cover the administrator tools. This helps with the labs and gets students into hands-on activities early in the class. If my class isn't familiar with Azure, I offer Learn sandbox alternatives during the lab time. I also refer them to the AZ-900 Azure Fundamentals GitHub labs. I make sure they have plenty to do during lab time, even if it isn't the formal suggested lab.
 Instructor 3	If students are unfamiliar with the Azure portal and need extra help, I do more demonstrations and fewer GitHub labs. For the hands-on activities I lead the class and go through the steps together with them. This takes more time, so I am careful which demonstrations and labs I select.
 Instructor 4	I allocate a time box for the labs based on my student's level of experience. The time shown on the lab is just an estimate. By timeboxing the labs, I ensure we don't fall behind. I direct students to finish any incomplete labs at home after class. If I think the class will benefit from pre-work, I will assign them some Quick Starts to read. This ensures they are better prepared for the next lab.

**Summary:**

To improve in this area, we ask that you use your best judgment when selecting which labs to do with your students. Alternative labs have been added to the GitHub pages where we think they are appropriate. You can suggest students go through those shorter and less complicated labs.

**Classroom interactivity**



**Typical comments:** *Need more balance between lecture and hands-on, more discussion and question/answer, and lecture was too long.*

**Discussion:**

Our goal in Microsoft Learning is to ensure there is at least a 50/50 mix of lecture/interactive elements. For AZ-104 we provide a lot of opportunities to engage the students. For example,

demonstrations, labs, and review questions. Recently, open-ended discussion questions were added to the MCT Download Center.

Here are how some suggestions from our top trainers on how they incorporate interactivity in their classes.

Persona	Class interactivity approach
 Instructor 1	<ul style="list-style-type: none"><li>• Frequently stop and ask open-ended questions.</li><li>• Use Mentimeter or Office to display multiple-choice questions and review the student responses.</li><li>• Let one of your advanced students share their screen and “drive” during the demonstration. Coach the student through the steps.</li><li>• Have someone monitor the chat and let you know if there is a question.</li></ul>
 Instructor 2	<ul style="list-style-type: none"><li>• Use a poll (or other signal) to determine if students are interested in or using a product or feature.</li><li>• Ask how many students are planning to take the exam. Work that information into your presentation.</li><li>• Ensure students can annotate your whiteboard. Have them participate by placing resources or linking items.</li></ul>

**Summary:**

To improve in this area, we ask that you plan to limit the amount of lecture to less than half the class time. Supplement your lecture with demos, questions, and discussion. Try to engage the students in as many ways as possible. This interactivity will take longer, so be sure to account for that.

Happy learning!

Azure Administrator Courseware Development Team