Microsoft

Technical Skills

The skills required to advance your career and earn your spot at the top do not come easily. Now there's a more rewarding approach to hands-on learning that helps you achieve your goals faster. **Earn points, levels, and achieve more!**
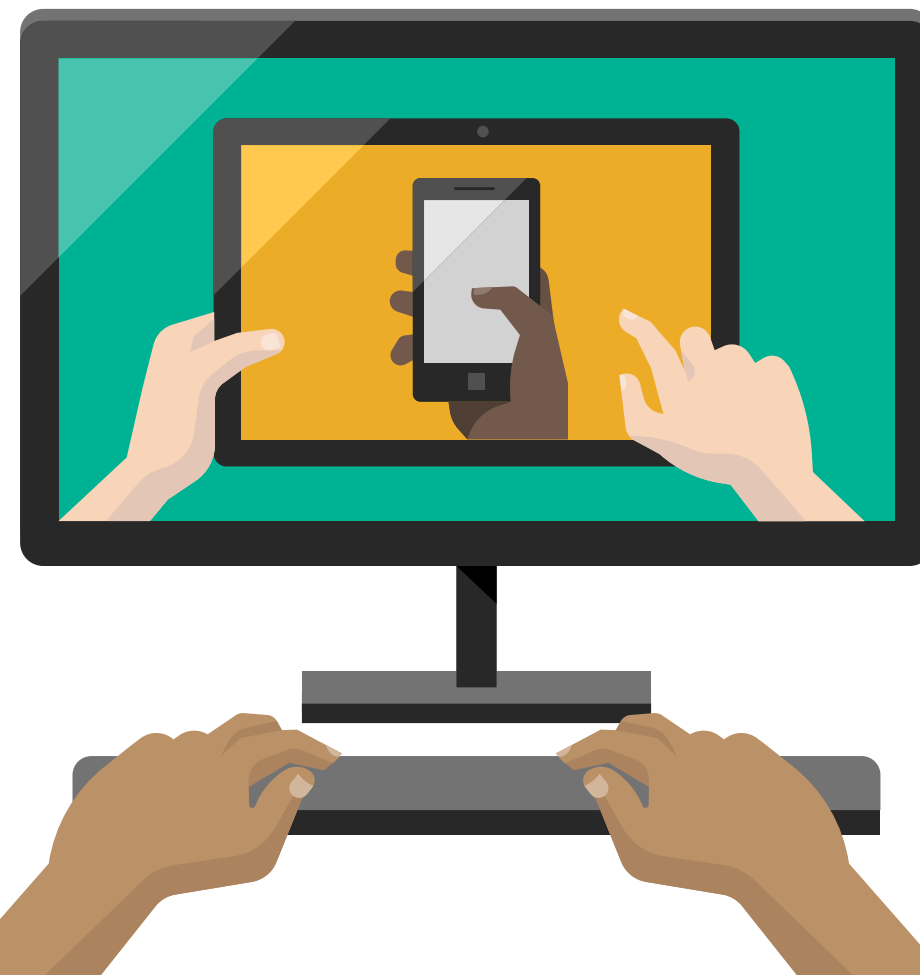
Microsoft Learn!

Up your game with a learning path tailored to today's developer and technology masterminds and designed to prepare you for industry-recognized Microsoft certifications.

Follow this interactive role based guide that helps navigate the hundreds of free courses available to you. The courses span a number of technologies and ranges from beginner to intermediate levels. You can then take your learning one step further by taking an exam and becoming certified.

In an every changing technological world it is imperative that we continue to develop our technical skills.

Microsoft

Why role-based learning matters

Choose the learning path tailored for you

Research shows that role-based learning approaches are much more effective than a one-size-fits-all strategy.

Learn new skills and discover the power of Microsoft products with step-by-step guidance. Start your journey today by exploring our learning paths and modules.

Administrator

Solution Architect

Developer

Technical skill levels: Beginner, Intermediate, and Certified

Build on what you know, using free online resources and then choose to take it to the next level by becoming certified.

Learning on your time: Tutorials and modules aligned to role-based certifications to fit your schedule.

Learn by doing: Interactive, in-browser coding environments provide hands-on experience.

Get recognized with achievements: Complete modules, test your knowledge, and earn and share achievements to recognize your Azure skills.

Learn the way you want: Choose from free self-paced tutorials and hands-on learning, free structured online courses from Pluralsight, and instructor-led classes from learning partners. The new learning content is aligned to the new role-based certifications.

Beginner

The courses at this level are all about *Fundamentals;* learn how to set up and use the technologies needed for your day-to-day job. Get a high level introduction into some new tools and workloads and become confident in cloud technologies.

Intermediate

Courses at this level extend your cloud knowledge and take a *deeper dive* into the technologies that can take your learning further. You can master new skills and explore the innovations that could extend your day-to-day.
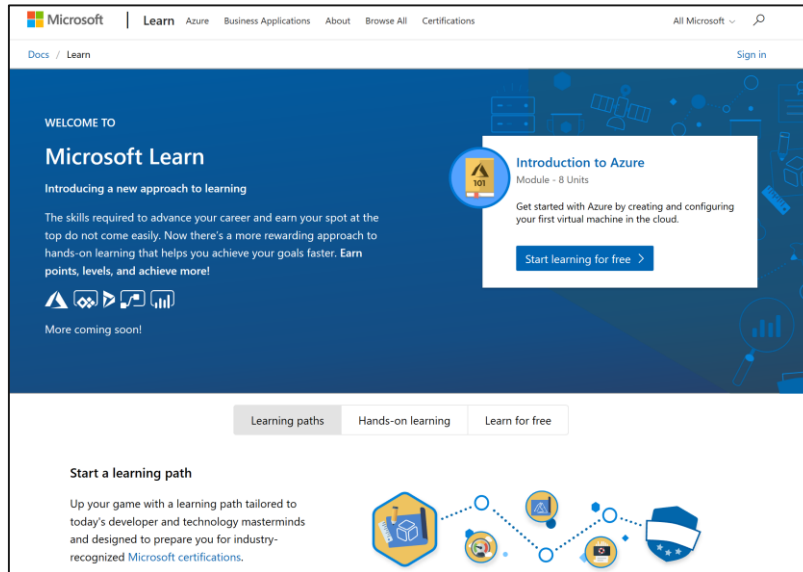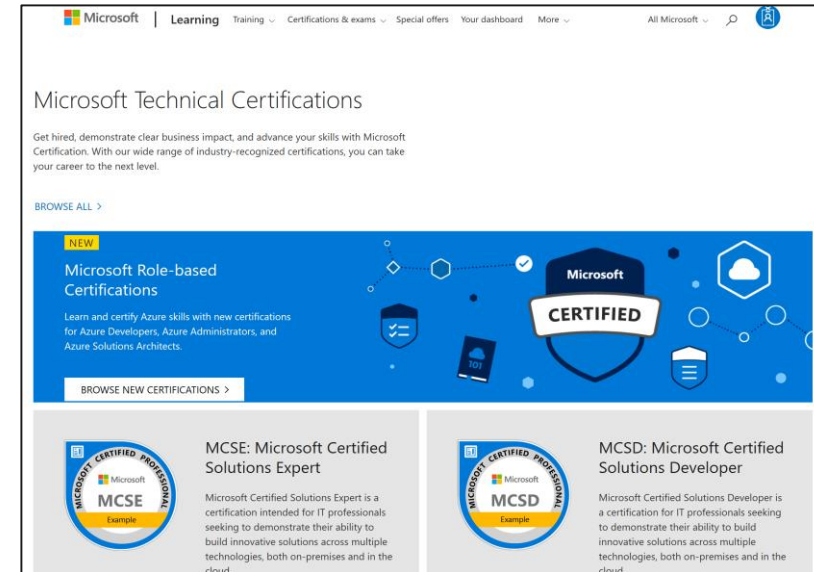
Certified

Take your learning one step further by becoming Microsoft Certified. Earn a **role-based certification** that shows you are keeping pace with today's technical requirements. Prove your expertise to employers and peers, and get the recognition and opportunities you've earned.

Microsoft Learn

We'll continue to optimize Microsoft Learn to help our customers build their practical skills and learn Microsoft technologies. This is where we'll launch new trainings, new learning paths, and tutorials for all of our services, including Azure, Dynamics, PowerBI, and Microsoft 365.

The Microsoft Learn Portal hoses all the content and courses detailed in this booklet.

The Microsoft certifications page has role based content and examinations that let you earn certifications

Tips on how to proceed

Assess your skill levels first, and find the courses and resources to build your capability and confidence

This document provides step-by-step guidelines to help you develop your technical skills by role type.

We start with a definitive set of learning roles and personas for you to identify with. Each has its own tailored technical skills-building path to follow, with plenty of links to free online resources. These are broken down into three skill levels – beginner, intermediate and certified — and provide guidance on how you can develop your technical skills.

The icons on this page highlight the various navigation elements you will see throughout the document and are there to ensure you find the relevant content that is right for you and your journey.

Return to your personal learning roles summary.

View a summary of all available learning roles in this document against which we have mapped skills.

Return to the home page.

View a summary of your digital capabilities and skills requirements.

View a summary of the digital capabilities you need to focus on.

View a summary of the skills relevant for beginners

View a summary of the skills relevant for intermediary

View a glossary of the Microsoft sources and information that have been used in the learning paths in this model.

Azure IT Administrator

One of the most important roles within any company now that we are in an age dominated by technology, the IT administrator typically will be responsible for a variety of administrative tasks designed to ensure your employer's IT network, security systems and servers are in perfect working order.

You play a major role in your company's IT network and your day to day tasks are likely to include; investigating and diagnosing network problems, collection of IT usage statistics, providing recommendations to improving the organisation's IT systems, configuration and installation of IT solutions and encouraging businesses' to embrace cloud technologies.

Use the icons below to discover the courses and tools you need to enhance your technical skills.

Navigate your digital journey
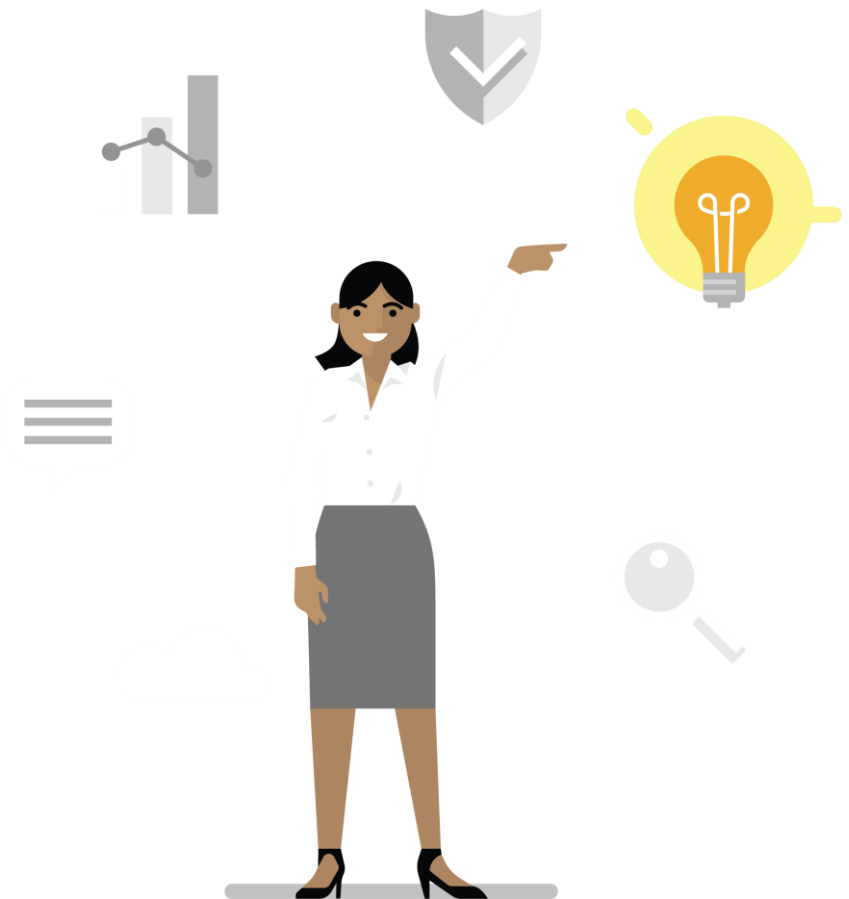
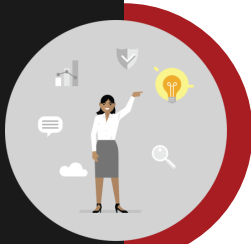| Overview of digital capabilities | Beginner-level skills | Intermediate-level skills | Certified-level skills | Glossary |

Azure IT Administrator BEGINNER

The systems and technology you need for your job

Learn how to set up and use the technologies needed for your day-to-day job – these can be accessed on devices such as your PC, tablet, laptop, mobile or other presentation boards and equipment.

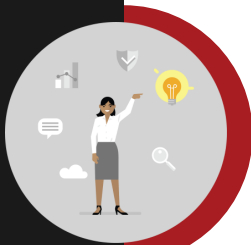| Course	Description
Azure fundamentals	Interested in the cloud, but aren't quite sure what it can do for you? This is the place to start.
Principles of cloud computing	Explore the core concepts of cloud computing and how it can help your business.
Create an Azure Account	The first step to using Azure is to create an account. Your account holds the Azure services you provision and handles your personal settings like identity, billing, and preferences.
Core Cloud Services - Introduction to Azure	Get started with Azure by creating and configuring your first virtual machine in the cloud.
Secure your Azure resources	Learn how to use Role Based Access Control RBAC to manage access to resources in Azure.
Core Cloud Services - Azure networking options	Running your app or service in the cloud requires a fast and secure network. Learn some of the Azure networking basics and how Azure networking helps improve resiliency and reduce latency.
Manage resources in Azure	Learn how to work with the Azure command line and web portal to create, manage, and control cloud based resources.
Core Cloud Services - Manage services with the Azure portal	Tour the Azure portal features and services, and customize the portal.

Azure IT Administrator BEGINNER

The systems and technology you need for your job

Learn how to set up and use the technologies needed for your day-to-day job – these can be accessed on devices such as your PC, tablet, laptop, mobile or other presentation boards and equipment.

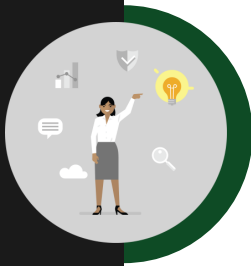| Course	Description
Build Azure Resource Manager templates	Learn how Resource Manager templates express your deployments as code, enabling you to deploy fast and reliably.
Keep your virtual machines updated	Deploy the Azure Update Management solution to update virtual machines in your cloud environment
Administer containers in Azure	This learning path will teach you how to create and manage your containers, and how ACI can be used to provide elastic scale for Kubernetes.
Introduction to Site Reliability Engineering (SRE)	Organizations big and small have started to realize just how crucial system and application reliability is to their business. Learn how Site Reliability Engineering (SRE) is a proven approach to this challenge.
Monitor and manage your coffee machine with Azure IoT Central	Learn how to create an Azure IoT Central application to monitor and manage an IoT device.
Security, responsibility and trust in Azure	Discuss the basic concepts for protecting your infrastructure and data when you work in the cloud. Understand what responsibilities are yours and what Azure takes care of for you.
Apply and monitor infrastructure standards with Azure Policy	Learn about governance and management in Azure services.
Core Cloud Services - Azure architecture and service guarantees	Azure provides a global network of secure datacenters you can deploy your services into. Learn about the physical architecture of Azure, how redundancy is provided, and what sort of service guarantees Microsoft provides.

The systems and technology you need for your job

Learn how to set up and use the technologies needed for your day-to-day job – these can be accessed on devices such as your PC, tablet, laptop, mobile or other presentation boards and equipment.

Course	Description
Manage virtual machines with the Azure CLI	Learn how to use the cross-platform Azure CLI to create, start, stop, and perform other management tasks related to virtual machines in Azure.
Create a Windows virtual machine in Azure	Azure virtual machines (VMs) enable you to create dedicated compute resources in minutes that can be used just like a physical desktop or server machine.
Administer infrastructure resources in Azure	Learn how to create, manage, secure and scale virtual machine resources.
Learn how to manage IoT devices as an IT Admin	With IoT adoption on the rise, learn what tools Microsoft offers Operations to help deploy, manage and secure said plethora of devices
Core Cloud Services - Azure compute options	Review the Azure compute services and explore how they can solve common business needs.
Create a Linux virtual machine in Azure	In this module, we'll discuss how to create a Linux virtual machine using the Azure portal.
Predict costs and optimize spending for Azure	Azure has several tools available to help you get a better understanding of cloud spend and some best practices that you can leverage to help you save money.
Introduction to Azure virtual machines	Learn about the decisions you make before creating a virtual machine, the options to create and manage the VM, and the extensions and services you use to manage your VM.

BEGINNER

Azure IT Administrator INTERMEDIATE

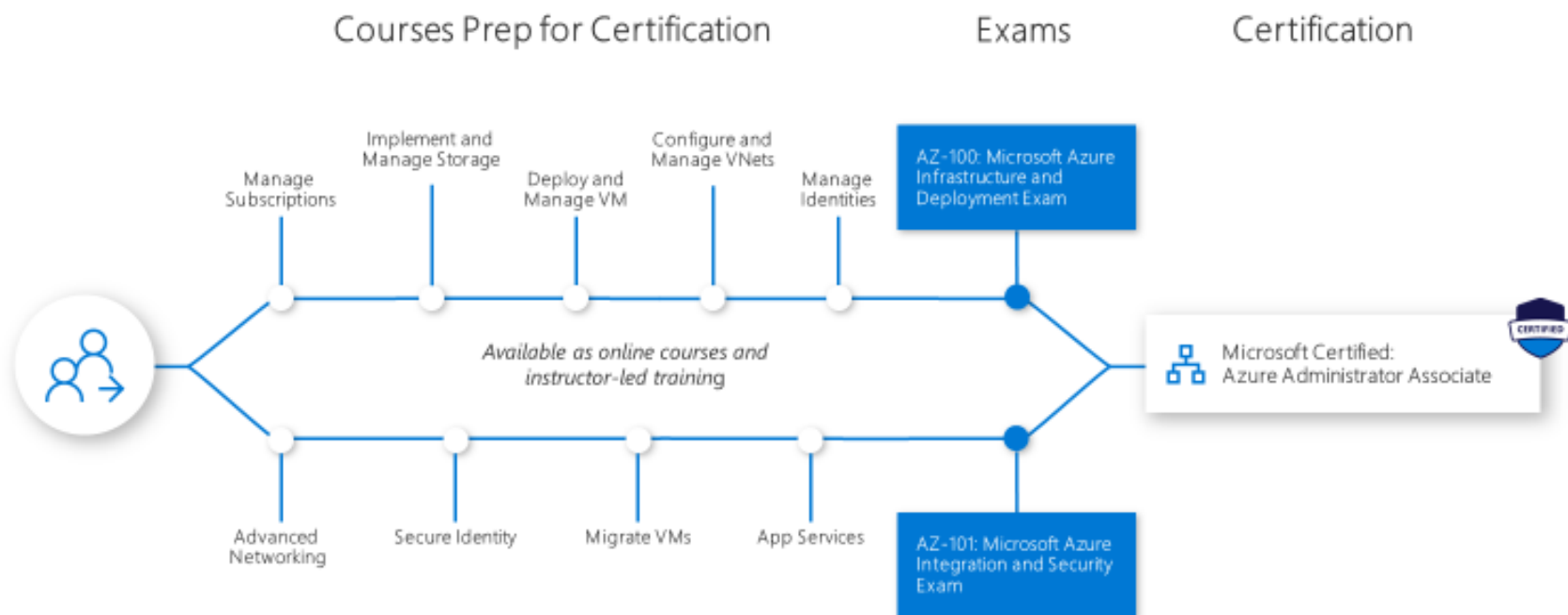# Planning and developing your learning

Take a deeper dive into the technologies that can take your learning further job – these can be accessed on devices such as your PC, tablet, laptop, mobile or other presentation boards and equipment.

Course	Description
Top 5 security items to consider before pushing to production	Secure your web applications on Azure and protect your apps against the most common and dangerous web application attacks.
Secure your Azure SQL Database	Secure your Azure SQL Database to keep your data secure and diagnose potential security concerns as they happen.
Run Docker containers with Azure Container Instances	Learn how to run containerized apps using Docker containers with Azure Container Instances (ACI).
Secure your Azure resources with conditional access	There's a tradeoff between security and ease-of-access. The conditional-access feature of Azure Active Directory helps you implement a good balance between the two. Learn how to implement a conditional-access policy using Azure Active Directory.
Build and store container images with Azure Container Registry	Azure Container Registry is a managed Docker registry service based on the open-source Docker Registry 2.0. Learn how to build and store container images with Azure Container Registry.
Secure your Cloud Data	Azure was designed for security and compliance. Learn how to leverage the built-in services to store your app data securely to ensure that only authorized services and clients have access to it.

Azure IT Administrator [CERTIFIED]

Continuous learning

Take your learning one step further by becoming Microsoft Certified as a Azure Administrator Associate. An Azure Administrator is responsible for implementing, monitoring, and maintaining Microsoft Azure solutions, including major services related to compute, storage, network, and security. Follow the learning path below and get certified today!

Courses Prep for Certification

Exams

Certification

Manage Subscriptions

Implement and Manage Storage

Deploy and Manage VM

Configure and Manage VNets

Manage Identities

AZ-100: Microsoft Azure Infrastructure and Deployment Exam

Available as online courses and instructor-led training

Microsoft Certified: Azure Administrator Associate

Advanced Networking

Secure Identity

Migrate VMs

App Services

AZ-101: Microsoft Azure Integration and Security Exam

Solution Architect

A solution architect plays an important role in the software development cycle, gathering requirements and directing the activities of the rest of the technical design team within a business. This role requires excellent attention to detail, as the solution architect frequently needs to examine functional specifications and translate them into system guidelines that shape project development as well as find ways to align projects with enterprise-level systems. Solution architects need to be highly technical and able to convert functional requirements into robust software solutions.

Your day to day tasks are likely to include; Conducting architectural evaluation and analysis of enterprise wide systems, Planning and designing complex company level storage solution configuration and Ensuring application architecture team delivers robust system solution to architect business.

Use the icons below to discover the courses and tools you need to enhance your skills.

Navigate your digital journey

| Overview of digital capabilities | Beginner-level skills | Intermediate-level skills | Certified-level skills | Glossary |

Solution Architect

The systems and tech you need to succeed

Learn how to set up and use the technologies needed for your day-to-day job – these can be accessed on devices such as your PC, tablet, laptop, mobile or other presentation boards and equipment.

Course	Description
Core Cloud Services - Introduction to Azure	Get started with Azure by creating and configuring your first virtual machine in the cloud.
Core Cloud Services - Azure networking options	Running your app or service in the cloud requires a fast and secure network. Learn some of the Azure networking basics and how Azure networking helps improve resiliency and reduce latency.
Introduction to Azure virtual machines	Learn about the decisions you make before creating a virtual machine, the options to create and manage the VM, and the extensions and services you use to manage your VM.
Manage resources in Azure	Learn how to work with the Azure command line and web portal to create, manage, and control cloud based resources.
Predict costs and optimize spending for Azure	Azure has several tools available to help you get a better understanding of cloud spend and some best practices that you can leverage to help you save money.
Architect great solutions in Azure	Learn how to design and build secure, scalable, performant solutions in Azure by examining the core principles found in every good architecture.
Create an Azure Account	The first step to using Azure is to create an account. Your account holds the Azure services you provision and handles your personal settings like identity, billing, and preferences.

Solution Architect BEGINNER

The systems and tech you need to succeed

Learn how to set up and use the technologies needed for your day-to-day job – these can be accessed on devices such as your PC, tablet, laptop, mobile or other presentation boards and equipment.

Course	Description
Align requirements with cloud types and service models in Azure	Azure supports three approaches to deploying cloud resources - public, private, and the hybrid cloud. We will look at all three types and help you make an informed decision about which one to leverage for your services.
Pillars of a great Azure architecture	You want to build great things on Azure, but you're not sure exactly what that means. Using key principles throughout your architecture regardless of technology choice, can help you design, build, and continuously improve your architecture.
Principles of cloud computing	Explore the core concepts of cloud computing and how it can help your business.
Azure fundamentals	Interested in the cloud, but aren't quite sure what it can do for you? This is the place to start.
Core Cloud Services - Azure compute options	Review the Azure compute services and explore how they can solve common business needs.
Apply and monitor infrastructure standards with Azure Policy	Learn about governance and management in Azure services.
Core Cloud Services - Manage services with the Azure portal	Tour the Azure portal features and services, and customize the portal.
Security, responsibility and trust in Azure	Discuss the basic concepts for protecting your infrastructure and data when you work in the cloud. Understand what responsibilities are yours and what Azure takes care of for you.

BEGINNER

Solution Architect

Find, curate, and create digital resources

Take a deeper dive into the technologies that can take your learning further job – these can be accessed on devices such as your PC, tablet, laptop, mobile or other presentation boards and equipment.
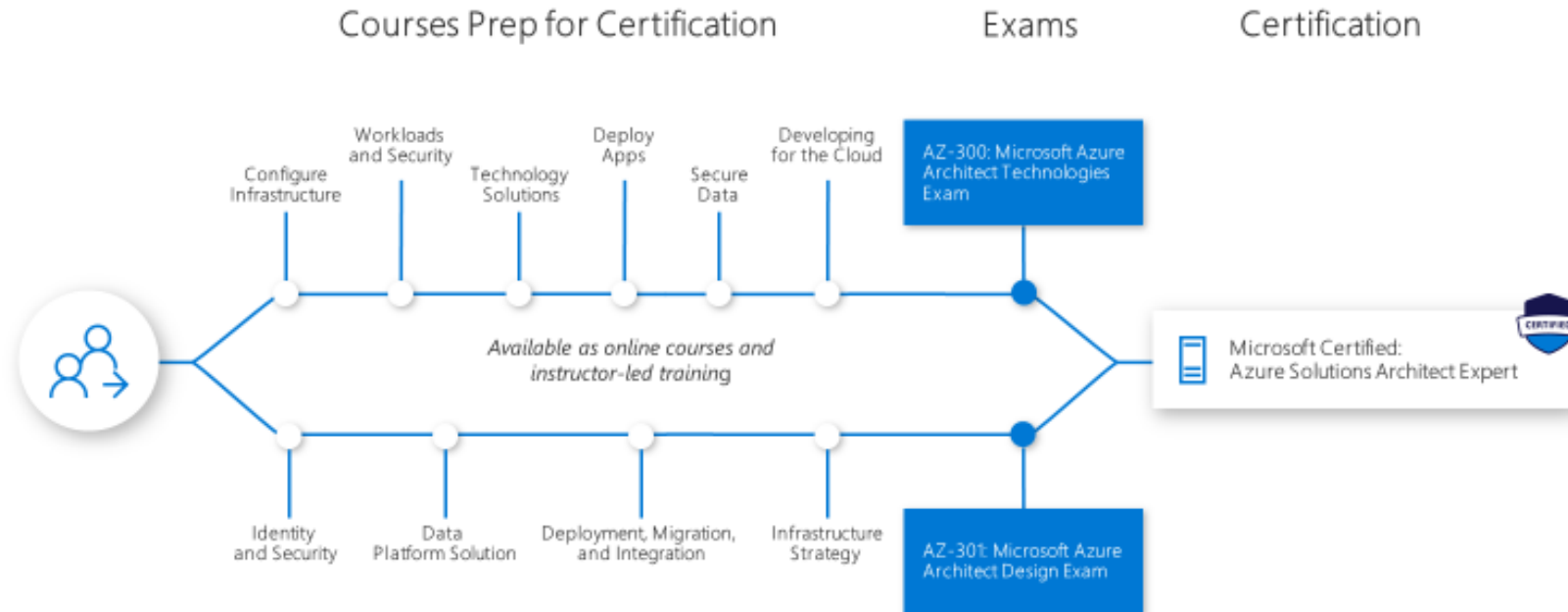
Course	Description
Introduction to Azure compute	Review the Azure compute services and explore how they can solve common business needs.
Control and organize Azure resources with Azure Resource Manager	In this module, we'll discuss how to control and organize Azure resources with Azure Resource Manager.
Design for efficiency and operations in Azure	Learn how to design an Azure architecture that is cost- and operationally-efficient, eliminates waste, and gives you full visibility into what's happening in your environment.
Design for security in Azure	Learn how to incorporate security into your architecture design, and discover the tools that Azure provides to help you create a secure environment through all the layers of your architecture.
Architect great solutions in Azure	Learn how to design and build secure, scalable, performant solutions in Azure by examining the core principles found in every good architecture.
Design for availability and recoverability in Azure	Learn how to handle infrastructure and service failure, recover from the loss if data, and recover from a disaster by designing availability and recoverability into your architecture.
Design for performance and scalability in Azure	Scaling your system to handle load, identifying network bottlenecks, and optimizing your storage performance are important to ensure your users have the best experience. Learn how to make your application perform at its best.
Tour the N-tier architecture style for your application	Use a resource manager template to deploy an application styled in an N-tier architecture, identify key concepts of N-tier architectures, and review best practices for deployments of this style.

Solution Architect — CERTIFIED

Continuous learning and reflection

Take your learning one step further and master the skills needed to design solutions that run on Azure. Become Microsoft Certified as a [Azure Solutions Architect Expert](#). A Microsoft Azure solution architect must have expertise in compute, network, storage, and security. Follow the learning path below and get certified today!

Courses Prep for Certification — Exams — Certification

Configure Infrastructure · Workloads and Security · Technology Solutions · Deploy Apps · Secure Data · Developing for the Cloud

AZ-300: Microsoft Azure Architect Technologies Exam

Available as online courses and instructor-led training

Identity and Security · Data Platform Solution · Deployment, Migration, and Integration · Infrastructure Strategy

AZ-301: Microsoft Azure Architect Design Exam

Microsoft Certified: Azure Solutions Architect Expert

Developer

This role is critical for a business to continue evolving and shaping in a technological age. Currently, about a third of IT jobs are in development and programming showing its importance in the market. There are many types of developers; software, application, web, game and database to name a few.

Take a software developer - you'll be playing a key role in the design, installation, testing and maintenance of software systems. The programs you create are likely to help businesses be more efficient and provide a better service. Based on your company's requirements, you might be responsible for writing and coding individual programmes or providing an entirely new software resource.Your typical day may include reviewing current systems and presenting ideas for improvements, creating detailed specifications and writing program codes and testing in a controlled situation before going live and implementing the changes across business.

Use the icons below to discover the courses and tools you need to enhance your skills.

Navigate your digital journey

Overview of digital capabilities

BEGINNER
Beginner-level skills

INTERMEDIATE
Intermediate-level skills

CERTIFIED
Certified-level skills

Glossary

Developer BEGINNER

The systems and tech you need at work

Learn how to set up and use the technologies needed for your day-to-day job – these can be accessed on devices such as your PC, tablet, laptop, mobile or other presentation boards and equipment.

Course	Description
Core Cloud Services - Introduction to Azure	Get started with Azure by creating and configuring your first virtual machine in the cloud.
Core Cloud Services - Azure networking options	Running your app or service in the cloud requires a fast and secure network. Learn some of the Azure networking basics and how Azure networking helps improve resiliency and reduce latency.
Introduction to Azure virtual machines	Learn about the decisions you make before creating a virtual machine, the options to create and manage the VM, and the extensions and services you use to manage your VM.
Create an Azure Account	The first step to using Azure is to create an account. Your account holds the Azure services you provision and handles your personal settings like identity, billing, and preferences.
Azure fundamentals	Interested in the cloud, but aren't quite sure what it can do for you? This is the place to start.
Build a web API with ASP.NET Core	ASP.NET Core supports building RESTful services, also known as web APIs, using C#. In this module, you'll learn how to create a web API supporting Create, Read, Update, Delete (CRUD) operations.
Choose a data storage approach in Azure	Learn how using Azure Storage, Azure SQL Database, and Azure Cosmos DB - or a combination of them - for your business scenario is the best way to get the most performant solution.
Principles of cloud computing	Explore the core concepts of cloud computing and how it can help your business.

Developer

The systems and tech you need at work

Learn how to set up and use the technologies needed for your day-to-day job – these can be accessed on devices such as your PC, tablet, laptop, mobile or other presentation boards and equipment.

Course	Description
Core Cloud Services - Azure compute options	Review the Azure compute services and explore how they can solve common business needs.
Introduction to Azure virtual machines	Learn about the decisions you make before creating a virtual machine, the options to create and manage the VM, and the extensions and services you use to manage your VM.
Connect an app to Azure Storage	Create a simple application and add configuration, client library references, and code to connect it to Azure Storage.
Create an Azure Database for PostgreSQL server	Azure Database for PostgreSQL provides fully managed, enterprise-ready community PostgreSQL database as a service. Learn how to create and deploy this service and connect it to your applications
Prepare your development environment for Azure developmen	Set up your local development environment with several popular IDEs.
Create a Linux virtual machine in Azure	In this module, we'll discuss how to create a Linux virtual machine using the Azure portal.
Deploy a website with Azure virtual machines	Learn how to create, configure, and manage virtual machines on Linux and Windows that host web apps.
Security, responsibility and trust in Azure	Discuss the basic concepts for protecting your infrastructure and data when you work in the cloud. Understand what responsibilities are yours and what Azure takes care of for you.

The systems and tech you need at work

Learn how to set up and use the technologies needed for your day-to-day job – these can be accessed on devices such as your PC, tablet, laptop, mobile or other presentation boards and equipment.

Course	Description
Store data in Azure	Azure provides a variety of ways to store data: unstructured, archival, relational, and more. Learn the basics of storage management in Azure, how to create a Storage Account, and how to choose the right model for storage.
Manage virtual machines with the Azure CLI	Learn how to use the cross-platform Azure CLI to create, start, stop, and perform other management tasks related to virtual machines in Azure.
Manage secrets in your server apps with Azure Key Vault	Azure Key Vault, in combination with managed identities for Azure resources, enables your Azure web app to access secret configuration values securely without needing to store any secrets in your source control or configuration.
Build a .NET Core app for Azure Cosmos DB in Visual Studio Code	Learn how to build a database app to store and query data in Azure Cosmos DB by using Visual Studio Code.
Insert and query data in your Azure Cosmos DB database	Learn how to add data to your database and query NoSQL data in Azure Cosmos DB.
Control Azure services with the CLI	Install the Azure CLI locally and use it to manage Azure resources.
Work with NoSQL data in Azure Cosmos DB	Learn how to use the Azure portal, the Azure Cosmos DB extension for Visual Studio Code, and the Azure Cosmos DB .NET Core SDK to work with your NoSQL data where you want, and provide your users with high availability.
Classify images with the Microsoft Custom Vision Service	Create, train and test a custom image classification model using the Custom Vision Service to accurately identify paintings from famous artists.

Developer

The systems and tech you need at work

Learn how to set up and use the technologies needed for your day-to-day job – these can be accessed on devices such as your PC, tablet, laptop, mobile or other presentation boards and equipment.

Course	Description
Build and run a web application with the MEAN stack on an Azure Linux virtual machine	Learn how to set up a MEAN-based web application on a new Azure Linux virtual machine.
Optimize your web applications by caching read-only data with Redis	Use Redis caching in Azure to reduce the load on databases. Apply different caching architectures to support larger loads in distributed and high-volume environments.
Predict costs and optimize spending for Azure	Azure has several tools available to help you get a better understanding of cloud spend and some best practices that you can leverage to help you save money.
Apply and monitor infrastructure standards with Azure Policy	Learn about governance and management in Azure services.
Core Cloud Services - Azure architecture and service guarantees	Azure provides a global network of secure datacenters you can deploy your services into. Learn about the physical architecture of Azure, how redundancy is provided, and what sort of service guarantees Microsoft provides.
Core Cloud Services - Manage services with the Azure portal	Tour the Azure portal features and services, and customize the portal.
Core Cloud Services - Azure data storage options	In this module, we'll explore the benefits of Azure data storage versus on-premises storage.
Execute an Azure Function with triggers	A trigger is responsible for executing an Azure function and there are dozens of triggers to choose from. This module will you show you some of the most common types of triggers and how to configure them to execute your logic.

Developer **BEGINNER**

The systems and tech you need at work

Learn how to set up and use the technologies needed for your day-to-day job – these can be accessed on devices such as your PC, tablet, laptop, mobile or other presentation boards and equipment.

Course	Description
Host a web application with Azure App service	Azure App Service enables you to build and host web applications in the programming language of your choice without managing infrastructure. Learn how to create a website through the hosted web app platfor.
Get started with Azure DevOps	In this module, we'll explore DevOps and learn how to get started with Azure DevOps.
Build a chat bot with the Azure Bot Service	The Azure Bot Service, combined with Microsoft QnA Maker, provide the tools developers need to build and publish intelligent bots that interact naturally with users using a range of services.
Provision an Azure SQL database to store application data	Use the Azure Portal and Cloud Shell to provision, connect, and manage Azure SQL databases.
Chain Azure functions together using input and output bindings	Azure Functions makes it easy for your function code to integrate with data and services. Through the power of bindings, you declare the data sources to read and write, and let Azure Functions take care of the rest.
Create an Azure Storage account	Create an Azure Storage account with the correct options for your business needs.
Publish a web app to Azure with Visual Studio	Use the publishing features of Visual Studio 2017 to deploy and manage an ASP.NET Core web application hosted on Azure.
Store application data with Azure Blob storage	Build an app that stores user files with Azure Blob storage.

Developer **BEGINNER**

The systems and tech you need at work

Learn how to set up and use the technologies needed for your day-to-day job – these can be accessed on devices such as your PC, tablet, laptop, mobile or other presentation boards and equipment.

Course	Description
Create serverless logic with Azure Functions	Azure Functions allows developers to host business logic that can be executed without managing or provisioning infrastructure.
Enable reliable messaging for Big Data applications using Azure Event Hubs	Connect sending and receiving applications with Event Hubs so you can handle extremely high loads without losing data.
Manage resources in Azure	Learn how to work with the Azure command line and web portal to create, manage, and control cloud based resources.
Choose a messaging model in Azure to loosely connect your services	Azure provides several technologies that you can use to communicate more reliably event when you have an application that consists of components running on different computers, servers and devices .
Deploy a website to Azure with Azure App Service	Web apps in Azure allow you to publish and manage your website easily without having to work with the underlying servers, storage, or network assets.
Process images with the Computer Vision service	Use the Computer Vision API to analyze images for insights, extract text from images, and generate high-quality thumbnails.
Create a Windows virtual machine in Azure	Azure virtual machines (VMs) enable you to create dedicated compute resources in minutes that can be used just like a physical desktop or server machine.
Automate Azure tasks using scripts with PowerShell	Install Azure PowerShell locally and use it to manage Azure resources.

Find, curate, and create digital resources

Take a deeper dive into the technologies that can take your learning further job – these can be accessed on devices such as your PC, tablet, laptop, mobile or other presentation boards and equipment.

Course	Description
The Mojifier - Create a Slack bot that replaces people's faces with emojis	Learn how to get images, calculate emotion, match emotions to emojis, and replace faces with emoji.
Caching and performance in Azure storage disks	Moving data fast is good for business. Learn about disk performance in Azure, how caching can help optimize read and write access to storage, and how to enable caching to help optimize the performance of Azure VM disks.
Secure your cloud data	Azure was designed for security and compliance. Learn how to leverage the built-in services to store your app data securely to ensure that only authorized services and clients have access to it.
Create serverless applications	Azure Functions enable the creation of event driven, compute-on-demand systems that can be triggered by various external events. Learn how to leverage functions to execute server-side logic and build serverless architectures.
Work with relational data in Azure	Azure supports several popular SQL-based database solutions including SQL Server, PostgreSQL, and MySQL. Learn how to use these enterprise data solutions in Azure to store and retrieve your app's data in the cloud
Configure the network for your virtual machines	Learn how to configure networking in a secure way for your Azure virtual machines.
Implement message-based communication workflows with Azure Service Bus	Write C# code in a custom application that sends and receives messages using Azure Service Bus topics and queues.
Secure your Azure virtual machine disks	Use Azure Disk Encryption (ADE) to encrypt OS and data disks on existing and new VMs.

Developer

INTERMEDIATE

Find, curate, and create digital resources

Take a deeper dive into the technologies that can take your learning further job – these can be accessed on devices such as your PC, tablet, laptop, mobile or other presentation boards and equipment.

Course	Description
Top 5 security items to consider before pushing to production	Secure your web applications on Azure and protect your apps against the most common and dangerous web application attacks.
Add and size disks in Azure virtual machines	Understand and create the different types of disk storage available to Azure virtual machines (VMs)
Share your location as a text message using Azure Functions and Twilio	Learn how to use location tracking on your phone mixed with Azure functions and Twilio to share your location with your friends as a text message.
Discover sentiment in text with the Text Analytics API	Learn what your customers are really saying about your product or brand when they send feedback. We'll create a solution that uses Azure Functions and the intelligence of the Text Analytics API to discover sentiment in text messages.
Distribute your data globally with Azure Cosmos DB	Learn how to distribute your data globally with Azure Cosmos DB.
Interactive deep learning with Jupyter, Docker and PyTorch on the Data Science Virtual Machine	Learn to train deep learning models with Jupyter, PyTorch and the Data Science Virtual Machine.
Communicate between applications with Azure Queue storage	Implement the publish-subscribe pattern in the cloud using Azure Queue storage.

Developer

Find, curate, and create digital resources

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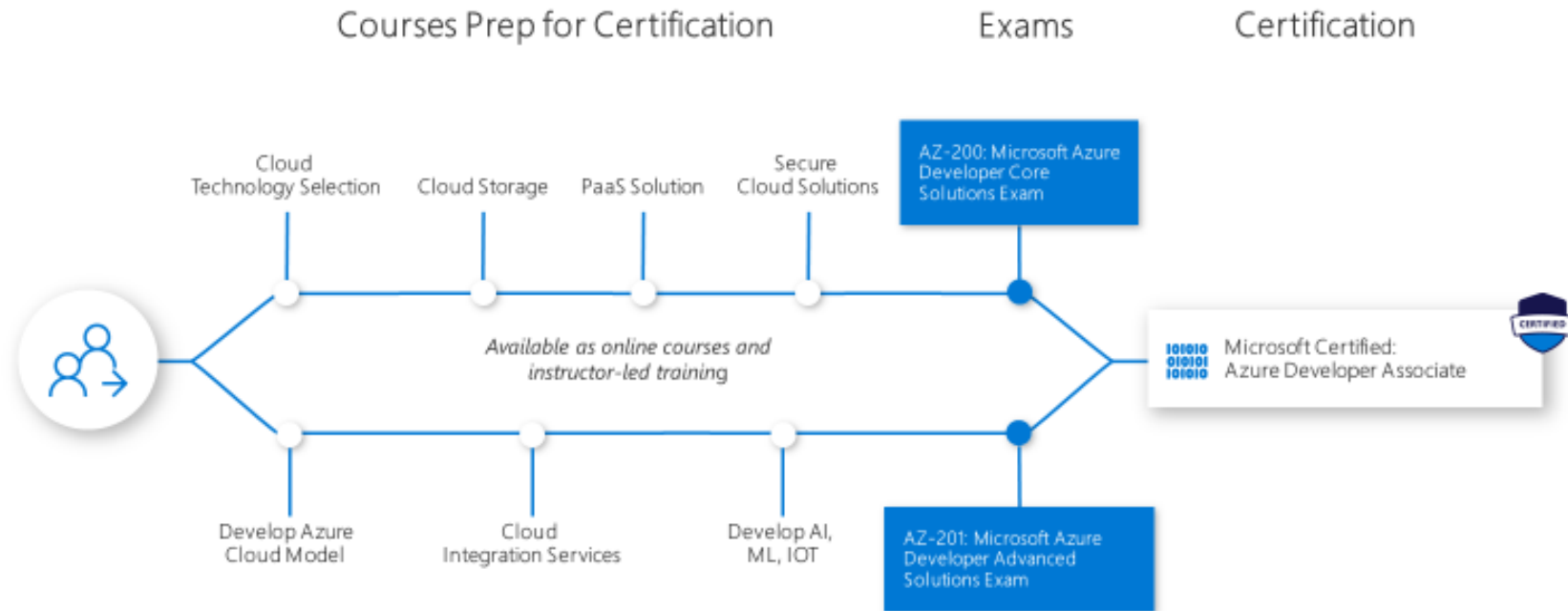
Course	Description
Connect your services together	Azure includes various communication strategies to let application components pass data to each other. Learn how to leverage these communication services to create scalable, efficient solutions out of testable components.
Work with mutable and partial data in Azure Cache for Redis	Use Azure Cache for Redis to store frequently accessed data. Learn how to create transactions, manage memory, and use the cache-aside pattern.

Developer CERTIFIED

Continuous learning and reflection

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