

Develop skills in building and deploying IoT solutions from the experts at AWS

Connect to Internet of Things (IoT) Learning



IoT market projections are positive

Enterprise and industrial sectors are already seeing success

The Internet of Things (IoT) refers to the networking of billions of physical devices around the world so they can collect and share data. In the emerging IoT ecosystem, new technologies like embedded sensors are making it possible for devices in homes, factories, cars, and elsewhere to collect data and to send and receive information over the internet. Cloud computing and data analytics are then used to turn that data into valuable, actionable insights for decision makers. Recent advances in technology, data speed, and cloud storage have made it possible for industrial enterprises to use the IoT to respond to problems

much faster, and thereby increase productivity, boost efficiency, and reduce accidents.

Applications for IoT include:

- Keeping track of inventory and automatically reordering when more products are needed
- Smarter shipping by relaying location data and other information to clients
- Predictive maintenance to forecast when repairs are necessary
- Controlling heat and air conditioning usage in large facilities to save money

Here are some important stats about the fast-growing IoT sector:

25 billion

the number of internet-connected “things” expected to be in use by 2021 producing an unprecedented volume of data.¹

13.7 billion

the number of IoT connections forecasted by 2021, up from 5.8 billion in 2016.²

\$4 trillion - \$11 trillion

predicted global economic impact of IoT by 2025.³

\$520 billion

the amount the markets for IoT hardware, software, systems integration, and data and telecom services will grow to in 2021, more than double the \$235 billion spent in 2017.⁴



How much a top 10 global energy company has reduced unit production costs over five years using IoT applications. In the last three years, it has saved more than \$9 billion.⁵

¹Gartner, Press Release, Nov. 2018.

²Global Cloud Index: Forecast and Methodology 2016-2021, Cisco White Paper, Nov 2018.

³McKinsey Global Institute, 2019.

⁴Unlocking Opportunities in the Internet of Things, Bain and Company, 2018.

⁵Ten trends shaping the Internet of Things business landscape, McKinsey & Company, Jan 2019.

“The IoT will have a great impact on the economy
by transforming many enterprises into digital businesses,
facilitating new business models, improving efficiency,
and increasing employee and customer engagement.”

Mark Hung, Vice President, Gartner Research

A growing skills gap is affecting IoT

Opportunity abounds for those who learn IoT skills

As IoT devices proliferate, businesses are realizing the huge value of the insights drawn from the volumes of data they produce. But how will organizations manage and maintain the solutions that govern, transmit, and analyze device data as it increases? Unfortunately, a looming IoT skills gap stands in the way of the improved efficiencies and increased productivity that IoT promises.

It is getting harder to find experienced and certified IT professionals who can manage an IoT in the market today, and this skills gap is severely threatening organizations' ability to take maximum advantage of all that the IoT offers. 76% of IT leaders say that skills gaps pose a high or medium risk to business objectives, and this risk comes in many forms—delays, loss of revenue, employee stress, and loss of business to competitors.⁶



According to a recent survey, **76% of respondents said they needed more high-level IoT specialists**, and 80% felt like they didn't have the skills needed to keep their IoT working as it is.⁷

As the value of IoT solutions becomes more apparent, deployment rates are expected to surge. This will increase demand even further for professionals with the skills needed to make IoT projects successful.

Up to now, **there has been a lack of relevant training on IoT available** for students and IT professionals in different roles at organizations on the skills required to successfully manage an IoT.

⁶2019 IT Skills & Salary Report, Global Knowledge.

⁷The Future of IoT in Enterprise, Inmarsat, 2017.

AWS Training and Certification is the solution to developing and identifying IoT Skills

AWS Training and Certification experts demystify IoT for all learners, so everyone can contribute

Here's how:

1

To prepare for new roles, learners need a deeper understanding of the cornerstones of the IoT, including cloud computing, data analytics, networking, and machine learning. Did you know that AWS Digital Training can help accelerate your organization's IoT strategy?

AWS Training and Certification prepares learners with the capability, confidence, and credibility to build and deploy IoT solutions for industrial, commercial, and consumer applications. Using videos and hands-on exercises, learners explore a variety of AWS services, including AWS IoT Core, AWS IoT Greengrass, AWS IoT Analytics, AWS IoT Device Management, and AWS IoT Events.

2

Now there is a way to verify IoT learning and knowledge. AWS Training and Certification offers IoT training built by the experts at AWS. Learners from across disciplines and professionals with different levels of knowledge and experience can engage in the AWS IoT digital training curriculum. Every stakeholder in an organization can gain critical insight into the field of IoT and **learn how best to proceed with IoT implementation.**

3

Learners have access to courses at a variety of skill levels that will increase their understanding of the IoT and how AWS services can help manage needs in this important field—**all at their own pace.** Whether they choose complimentary courses on big data, artificial intelligence, or machine learning, they can approach your work with the added know-how on IoT they need to use the cloud in the cloud.

“AWS Training is quick, and it’s very up to date with all of the newest technology. You can start a session, obtain the knowledge and move on without a lot of extra steps.”

Jonie Kennedy, Director, ACT

“Training speeds up the innovation process and improves the relationship between IT and line of business.”

Peter Loeffler, Siemens Building Technologies





Get up-to-speed with IoT

Learn practical IoT skills when and where it's convenient for you with AWS Training and Certification digital course offerings

AWS offers several digital courses on IoT covering basic through advanced concepts. Additional content is offered by our trusted AWS Training Partner, edX. These flexible e-learning courses, which vary in length from 10 minutes to 15 hours, help you broaden your understanding of IoT and set you on the path to an AWS Certification. All courses can be accessed in the [**AWS Learning Library**](#) or on [**www.edx.org**](http://www.edx.org).

Featured courses:

Internet of Things Foundation Series

Free digital course – 7 hours

In this self-paced curriculum, you will learn foundational knowledge and skills within AWS IoT Core and its associated services. By the end of the course, you will be better prepared to dive deeply into more technical topics such as IoT Security, Message Queuing Telemetry Transport (MQTT), and the AWS IoT Rules Engine. This curriculum contains self-directed online training courses that are scenario-based and aligned with the library of IoT design patterns called the [IoT Atlas](#) and IoT best practices in [AWS whitepapers](#).

[LEARN MORE](#)

Introduction to AWS IoT Device Management

Free digital course – 10 minutes

This course dives deep into the functional categories of the AWS Cloud-based device management service, including how you can onboard device information and configuration, organize device inventory, monitor your fleet of devices, and remotely manage your devices.

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Introduction to AWS IoT

Free digital course – 10 minutes

In this course, you will learn how the AWS IoT communication architecture works and the components that comprise AWS IoT. We will discuss how AWS IoT works with other AWS services. A case study of AWS IoT will also be provided.

[LEARN MORE](#)

AWS IoT: Developing and Deploying an Internet of Things (on edX)

**Free digital course – 4 weeks
(12 – 15 hours total)**

Required experience: AWS Console experience, SageMaker on edX, and AWS Developer Series on edX

This course will introduce you to IoT and explore the AWS IoT services. Expert instructors will dive deep into topics such as the device gateway, device management, the device registry, and shadows. They will also discuss security features and implications, core and edge computing capabilities and benefits, and the use of HTTP and MQTT as communications protocols. Lastly, they will discuss the integration of IoT solutions with analytics tools, which will allow you to analyze the IoT data being collected by your fleet of devices.

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Where do you start?

AWS IoT digital courses are appropriate for a broad range of learners



Business Decision Maker

The *Internet of Things Foundation Series* is the ideal starting point to learn how to consume and use insights from IoT analytics to inform the orchestration of business decisions.

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Data Engineer

If you know how to plumb data flows to data stores and achieve scalability with AWS Lambda but want to learn how to develop for IoT devices, the *Introduction to AWS IoT Device Management* course is a good starting point.

[LEARN MORE](#)



Operations Analyst

The *Internet of Things Foundation Series* and *Introduction to AWS IoT* are ideal starting points for those who need to investigate and analyze IoT data and learn to develop models business leaders can use to make good decisions and engineers can use to take appropriate actions.

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Line of Business (LOB) Application Developer

The *Internet of Things Foundation Series* offers experience across IoT Core and its associated services. This is ideal for developers who are new to IoT and want to get prepared to dive deep into more technical topics, such as IoT Security, MQTT, and the AWS IoT Rules Engine.

[LEARN MORE](#)

Explore the world of IoT through digital training from AWS

Access digital courses on IoT from AWS Training and Certification at no cost to you. Start exploring all of the IoT offerings from AWS. Choose the classes that are right for you—then dive in and start learning.

[Register today](#)