Introduction to the Internet of Things 2.0 Scope and Sequence

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Target Audience

The Cisco® Introduction to the Internet of Things (I2IoT) curriculum is designed for Cisco Networking Academy® students that are interested in specializing in IoT-related professions.

Prerequisites

There are no prerequisites for this course.

Target Certifications

There are no target certifications for this course.

Curriculum Description

This course teaches the fundamentals of the Internet of Things, covering the value of the IoT and how it is transforming our lives, our industries, and even the cities in which we live. The learner is presented with an engaging, exploratory view of programming IoT devices, Big Data, analytics, and automation. The course introduces Digital Transformation and highlights the impact digitization is having in businesses and the world. The course encourages the learner to continue in the IoT Fundamental course pathway.

The course has many features to help students understand these concepts:

- Rich multimedia content, including interactive activities, videos, games, and quizzes, addressing a variety of learning styles to help stimulate learning and increase knowledge retention.
- Hands-on labs and Packet Tracer simulation-based learning activities help students develop critical thinking abilities and complex problem solving skills.
- Innovative assessments provide immediate feedback to support the evaluation of knowledge and acquired skills.
- Technical concepts are explained using language that works well for learners at all levels, and embedded interactive activities break up reading of the content and reinforce understanding.
- The curriculum encourages students to consider additional IT education, but also emphasizes applied skills and hands-on experience.

Cisco Packet Tracer activities are designed for use with Packet Tracer 7.1.1.

Curriculum Objectives

The goal of this course is to provide the learner with an engaging, exploratory view of the Digital Transformation that is taking place in businesses and the world and to encourage the learner to continue in the IoT Fundamental course pathway. The online course materials will assist the student in communicating their knowledge and desire to specialize in IoT-related professions.

Upon completion of the I2IoT 2.0 course, students will be able to perform the following tasks:

- Explain the meaning and impact of Digital Transformation.
- Apply basic programming to support IoT devices.

- Explain how data provides value to Digital Business and Society.
- Explain the benefits of automation in the digitized world.
- Explain the need for enhanced security in the digitized world.
- Discover opportunities provided by digital transformation.

Minimum System Requirements

For the best classroom learning experience, we recommend a class size of 12 to 15 students and a ratio of one Lab PC per student. At most, two students can share one Lab PC for the hands-on labs. Some lab activities require the student Lab PCs to be connected to a local network. This course is also offered as a self-learning initiative.

Lab PC Hardware Requirements

- Computer with a minimum of 4 GB of RAM and 8 GB of free disk space
- High speed Internet access to download software and work with online tools such as Blockly

Optional Hardware Requirements

In addition to the required labs in this course, there are optional challenge labs which can be completed by students should they wish to explore prototyping in more depth. In order to complete these challenge labs, the student will need to have the following equipment:

- Prototyping Lab Kit (PL-Kit)
- Prototyping Lab App (PL-App) Launcher application
- Prototyping Lab App (PL-App) Image file
- Wired Ethernet or Wi-Fi connection to the local-area network with DHCP
- Raspberry Pi with a power adapter
- Google Chrome or other modern web browser

I2IoT 2.0 Outline

This course provides a comprehensive introduction to how the interactions of the elements of digitization and the IoT bring value to organizations, businesses, governments, and industries. Students will learn how devices that were previously not connected will become connected, playing an important role in an IoT System. The course will help students understand the roles and responsibilities of IT industry jobs in the IoT and how students can create their own IoT job.

Chapter Outline

Table 1. Chapter Outline

Chapter /Section	Goals/Objectives
Chapter 1. Everything is Connected.	**Explain the meaning and impact of Digital Transformation.**
1.1 Digital Transformation	Explain how digital transformation affects business, industry, and our daily lives.
1.2 Devices that Connect to the IoT	Configure an IoT device to connect to the network.

Chapter /Section	Goals/Objectives
Chapter 2. Everything Becomes Programmable	**Apply basic programming to support IoT devices.**
2.1 Apply basic programming to support IoT devices.	Use Python to create programs that accept user input and read and write to external files.
2.2 Prototyping Your Idea	Explain prototyping and its purpose.
Chapter 3. Everything Generates Data	**Explain how data provides value to Digital Business and Society.**
3.1 Big Data	Explain the concept of Big Data.
Chapter 4. Everything can be Automated	**Explain the benefits of automation in the digitized world.**
4.1 Digitization allows business processes to embrace automation	Explain how digitization allows business processes to embrace automation.
Chapter 5. Everything Needs to be Secured	**Explain the need for enhanced security in the digitized world.**
5.1 Security in the Digitized World	Explain why security is important in the digitized world..
Chapter 6. Educational and Business Opportunities	**Discover opportunities provided by digital transformation.**
6.1 Where Can I Go From Here?	Explain the challenges and opportunities that exist in the digitized world.

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