IoT Fundamentals: Connecting Things Course Resources

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Curriculum Overview

The Cisco Networking Academy's IoT Fundamentals curriculum provides students with a comprehensive understanding of the Internet of Things (IoT). It develops foundational skills using hands-on lab activities that stimulate the students in applying creative problem-solving and rapid prototyping in the interdisciplinary domain of electronics, networking, security, data analytics, and business. The student-centric approach translates into the student being able to ideate, design, prototype and present an IoT solution for an identified business or society need.

There are 4 instructor-led courses in the IoT Fundamentals curriculum: Connecting Things, IoT Security, Big Data & Analytics and Hackathon Playbook. Upon completion of each course, the end-of-course survey, and the end-of-course assessment, the student will receive a Certificate of Completion.

The first course, Connecting Things, focuses on identifying, designing, prototyping, and presenting an IoT solution that securely solves a current business or social problem. The IoT Security course follows with building skills to perform vulnerability and risk assessments, and research and recommend risk mitigation strategies for common security threats in IoT systems. These skills are relevant across IoT and other network architectures. The Big Data & Analytics course builds on Connecting Things, teaching you how to collect, store, and visualize data obtained from IoT sensors. You'll develop the ability to extract data and use data analytics to gain insights, an extremely valuable skill to employers. In the hackathon, you'll apply the multidisciplinary skills learned in Connecting Things, IoT Security and Big Data & Analytics to identify and solve a real-world problem.

Equipment & Applications

All 4 courses in the IoT Fundamentals curriculum use the Cisco Prototyping Lab as the basis for their hands-on experience. The Prototyping Lab is a set of hardware and software components that enables students and instructors to learn about, to prototype, and to model various IoT, digitization and data analytics solutions.

Cisco Packet Tracer is also used across the curriculum to simulate IoT solutions.

Recommended Background for Students

Connecting Things students should have a basic understanding of how to network devices in a LAN and connect them to the internet; an ability to solve basic algorithmic problems using a programming language; knowledge of basic physics concepts such as current, voltage, resistance, and power; and a familiarity with Cisco Packet Tracer.

Instructor Training Requirements

Instructor Training is required for Connecting Things. There are two options, ITC Academy classes and a self-paced Cisco Instructor Training course. See the Instructor Training Approach document for the details.

Institution Requirements

- A dedicated classroom with reliable Internet access.
- Aligned with an ASC.

Certification and Career Pathways

IoT Fundamentals models end-to-end IoT systems, providing a firm foundation for understanding larger, more complex solutions encountered as a professional. Its multidisciplinary approach teaches critical career skills for today's rapidly-changing IoT world. Career pathways can be as creative as your imagination, but we've identified a few opportunities below.

Career pathways include: network administration, IoT device management, security administration, business analytics, IoT data analyst, IoT product manager, digital security and privacy, and many more jobs that have yet to emerge!