

---

## CertNexus Certified Internet of Things Practitioner (CIoTP)

### Overview

---

In this course, you will learn general strategies for planning, designing, developing, implementing, and maintaining an IoT system through various case studies and by assembling and configuring an IoT device to work in a sensor network. You will create an IoT device based on an ESP8266 microcontroller, implementing various common IoT features, such as analog and digital sensors, a web-based interface, MQTT messaging, and data encryption.

**Course includes an exam voucher for the Certified Internet of Things Practitioner (CIoTP) exam (exam ITP-110).**

This course may earn a Credly Badge.

### Prerequisite Comments

---

To ensure your success in this course you should be an experienced computer user who is comfortable setting up and configuring computers and electronic devices. You can obtain this level of skills and knowledge by taking the CompTIA IT Fundamentals course.

### Target Audience

---

This course is designed for IT professionals with baseline skills in computer hardware, software support, and development who want to learn how to design, develop, implement, operate, and manage Internet of Things devices and related systems. It is for those interested in learning more about embedded systems, microcontroller programming, IoT security, and the development life cycle for IoT projects.

While students will gain hands-on experience assembling a prototype IoT device and using software development tools, these activities are closely guided, so previous experience in electronics assembly and programming are not required. This course prepares students for taking the CertNexus Certified Internet of Things (IoT) Practitioner (Exam ITP-110).

### Course Objectives

---

In this course, you will learn how to apply Internet of Things technologies to solve real-world problems.

You will:

Construct and program an IoT device.

Communicate with an IoT device using wired and wireless connections.

Process sensor input and control an actuator on an IoT device.

Manage security, privacy, and safety risks on IoT projects.

Plan an IoT prototyping and development project.

### Course Outline

---

#### 1 - Planning an IoT Implementation

Select a General Architecture for an IoT Project

Identify Benefits and Challenges of IoT

## 2 - Constructing and Programming an IoT Device

Select and Configure a Processing Unit  
Select a Microcontroller Power Source  
Use a Software Development Kit to Program an IoT Device

## 3 - Communicating with an IoT Device

Communicate Using Wired Connections  
Communicate Using Wireless Connections  
Communicate Using Internet Protocols

## 4 - Processing IoT Data

Process IoT Device Input and Output  
Process Data in the Cloud  
Provide Machine to Machine Communication

## 5 - Managing Risks on IoT Projects

Identify IoT Security and Privacy Risks  
Manage IoT Security and Privacy Risks  
Manage IoT Safety Risks

## 6 - Undertaking an IoT Project

Identify Real World Applications for IoT  
Follow the IoT Development Lifecycle

---