CertNexus Certified Internet of Things Practitioner (CIoTP)

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Course Overview

The Internet of Things (IoT) promises a wide range of benefits for industry, energy and utility companies, municipalities, healthcare, and consumers. Data can be collected in extraordinary volume and detail regarding almost anything worth measuring, such as public health and safety, the environment, industrial and agricultural production, energy, and utilities. New data analysis tools have been optimized for the massive amounts of data that IoT produces, enabling well-informed decisions to be made quickly.

In this course students 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. Students 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.

Target Audience

Network Administrator

Software Development Engineer

Solution Architect

Product Manager

Application Developer

Technical Writer

Business Development Analyst

Cybersecurity Analyst

Platform Engineer

Chief Information Officer

Course Objectives

- Plan an IoT implementation
- 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
- Manage an IoT prototyping and development project throughout the development lifecycle

Duration

3 Days

Credentials

ITP-110

Contact Us

📞 800.674.3550

📍 2151 W. Hillsboro Blvd. Suite 210
Deerfield Beach, FL 33442

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Course Outline

Lesson 1: Planning an IoT Implementation

- Topic A: Select a General Architecture for an IoT Project
- Topic B: Identify Benefits and Challenges of IoT

Lesson 2: Constructing and Programming an IoT Device

- Topic A: Select and Configure a Processing Unit
- Topic B: Select a Microcontroller Power Source
- Topic C: Use a Software Development Kit to Program an IoT Device

Lesson 3: Communicating with an IoT Device

- Topic A: Communicate Using Wired Connections
- Topic B: Communicate Using Wireless Connections
- Topic C: Communicate Using Internet Protocols

Lesson 4: Processing IoT Data

- Topic A: Process IoT Device Input and Output
- Topic B: Process Data in the Cloud
- Topic C: Provide Machine to Machine Communication

Lesson 5: Managing Risks on IoT Projects

- Topic A: Identify IoT Security and Privacy Risks
- Topic B: Manage IoT Security and Privacy Risks
- Topic C: Manage IoT Safety Risks

Lesson 6: Undertaking an IoT Project

- Topic A: Identify Real World Applications for IoT
- Topic B: Follow the IoT Development Lifecycle

Appendix A: Mapping Course Content to Certified Internet of Things Practitioner (CIoTP) (Exam ITP-110)

Prerequisites

- Understanding of the business benefits and challenges of IoT systems.
- Understanding of a typical IoT ecosystem, including the physical elements, edge/fog computing elements, network and connectivity elements, cloud and cloud platform elements, and the applications and things within various market sectors.
- Understanding of common IoT security and privacy threats and countermeasures.
- Understanding of common IoT safety hazards and risk management approaches.
- Understanding of the IoT system development life cycle.