Certified Internet of Things Practitioner

Course ID #: 7000-323-ZZ-Z
Hours: 21

Course Content

Course Description:

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.

At Course Completion:

After competing this course, student will be able to:

- 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

Prerequisites:

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.

Target Student:

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. The student is interested in learning more about embedded systems, microcontroller programming, IoT security, and the development life cycle for IoT projects.

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Topics:

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)