Certified IoT Practitioner

Providing the knowledge base necessary to work within connected environments

**Define**
- Define the terminology and vocabulary commonly used in the IoT space. Become familiar with IoT concepts, devices, and definitions and create consistency among these terms.

**Develop**
- Gain hands-on experience through the assembly of electronic components and considerations of IoT ecosystems.

**Operate**
- Program devices with the ability to collect data from sensors, and operate actuators under remote control. Enable devices to forward data to the cloud, and analyze the data using cloud-based analytics tools.

**Manage**
- Integrate security and recognize potential safety risks among IoT devices. Understand privacy and the data at risk when it comes to IoT.

**Decide**
- Develop the skills to identify components of a successful IoT project. Identify real world applications for IoT within industries such as healthcare, finance, energy, transportation, agriculture, retail, etc.

**Benefits**
- Learn general strategies and become certified for planning, designing, developing, implementing, and maintaining an IoT system through various case studies and by assembling and using their own IoT device.

**Hands-On**
- Create an IoT device based on an ESP8266 microcontroller, and implement various common IoT features such as sensors, actuators, a web-based interface, MQTT messaging, and data encryption.

**Who Should Attend**
- Cloud Operations, Software Engineers, System Administrators, Application Developers, IT Analysts, IT Consultants, Project Managers, IT Architects, Business Process Owners, and Business Analysts

For more information please contact: info@certnexus.com
The Internet of Things (IoT) will initiate the most significant skills shortage across IT, manufacturing, data analysis and security. One million jobs in IoT are expected to be added through 2020. Certified Internet of Things Practitioner (CloTP) provides a vendor neutral foundation to build the skills required for these jobs and new job functions related to IoT. CloTP and the achievement of a passing score on the ITP-110 exam will validate your ability to design, implement, operate, and/or manage an IoT Eco-system at a foundational level. The Internet of Things promises a wide range of benefits for industry, energy, and utility companies, municipalities, healthcare, and consumers.

In this 3-day instructor-led course, participants will learn general strategies for planning, designing, developing, implementing, and maintaining an IoT system through various case studies, and by assembling and using their own IoT device. Participants will create an IoT device based on a microcontroller, implementing various common IoT features, such as sensors, actuators, a web-based interface, MQTT messaging, and data encryption.

**Course Objectives**
At course completion, participants will have learned how to:

- Design IoT devices and related systems
- Develop IoT devices and related systems
- Implement IoT devices and related systems
- Operate IoT devices and related systems
- Manage IoT devices and related systems

**Delivery Method:**
3 Days, Instructor-led

**Intended 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 IoT devices and related systems. The participant is interested in learning more about embedded systems, microcontroller programming, IoT security, and the development life cycle for IoT projects. While participants will gain hands-on experience constructing electronic components on a prototyping breadboard, and using software development tools, these activities are closely guided, so previous experience in electronics assembly and programming are not required.

This course will prepare students for taking the CertNexus Certified Internet of Things (IoT) Practitioner Exam ITP-110
**Lesson 1: Constructing & Programming an IoT Device**

Topic A: Identifying Components of an IoT Solution  
Topic B: Select and Configure a Microcontroller  
Topic C: Use a Software Development Kit to Program an IoT device

**Lesson 2: Communicating with an IoT Device**

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

**Lesson 3: Processing Input and Output**

Topic A: Process Sensor Input  
Topic B: Control Actuators and Other Output Devices  
Topic C: Process Data in the Cloud

**Lesson 4: Managing Risks on IoT Projects**

Topic A: Manage IoT Security and Privacy Risks  
Topic B: Manage IoT Safety Risks

**Lesson 5: Planning an IoT Project**

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

**IoT Activities: Use Case Studies for...**

- Selecting Appropriate Applications for Microcontrollers and Microprocessors  
- Selecting Power Sources for IoT Devices  
- Identifying Safety Risks and Remediations  
- Planning an IoT Solution