



# **Certified Internet of Things Professional (CIoTP)**

## **Course Outline**

**[www.globalicttraining.com](http://www.globalicttraining.com)**

## **DURATION**

- 4 days

## **COURSE OBJECTIVE**

This course will focus on the core technologies behind Internet of Things. This certification leverages and explores the middleware for IoT, Machine learning for Intelligent IoT, Data Science for Intelligent IoT, Analytic engine for IoT, Big data platform for IoT, API design considerations for IoT, IoT standards and Management of IoT, which makes a world fully connected.

After the course, participants will have a good understanding of the different pieces of an IoT system and how they interact.

Bringing together these skills and the related specific knowledge on the subject will allow the project partners to tackle all aspects of considerable complexity of developing a general architecture for the Internet of Things.

## **Job Role in NICF / TARGET AUDIENCE**

- Cloud Operations Engineer
- Project Engineer
- System Engineer
- Services Engineer
- IHL Students

## PRE-REQUISITES

Participants are recommended to have some understanding/knowledge of Internet of Things (IoT).

## PROGRAM STRUCTURE

This is a 4-day intensive training program with the following assessment components.

Component 1. Written Examination

Component 2. Project Work Component (PWC)

These components are individual based. Participants will need to obtain 70% in both the components in order to qualify for this certification. If the participant fail one of the components, they will not pass the course and have to re-take that particular failed component. If they fail both components, they will have to re-take the assessment.

## COURSE SESSION SCHEDULE

Day 1	<b>Session 1</b> (9:00 – 10:30)	<b>Session 2</b> (10:40 – 12:10)	<b>Session 3</b> (13:10 – 16:10)	<b>Session 4</b> (16:10 – 18:10)	
	Introduction to IoT	Introduction to IoT	IoT Applications	Overview of IoT	
Day 2	<b>Session 1</b> (9:00 – 10:00)	<b>Session 2</b> (10:10 – 12:10)	<b>Session 3</b> (13:10 – 14:10)	<b>Session 4</b> (14:10 – 17:10)	<b>Session 5</b> (17:10 – 18:40)
	Overview of IoT	Components & elements of IoT	Components and elements of IoT	Architecture of IoT System	Databases for IoT
Day 3	<b>Session 1</b> (9:00 – 10:30)	<b>Session 2</b> (10:40 – 12:40)	<b>Session 3</b> (13:40 – 14:10)	<b>Session 4</b> (14:10 – 18:10)	
	Databases for IoT	Mobile integration to enable IoT	Mobile integration to enable IoT	Security aspects of IoT	
Day 4	<b>Session 1</b> (9:00 – 10:00)	<b>Session 2</b> (10:10 – 12:10)	<b>Session 3</b> (13:10 – 15:10)	<b>Session 4</b> (15:10 – 17:40)	
	Privacy aspects of IoT	Privacy aspects of IoT	Privacy aspects of IoT	CloTP examination	

## **COURSE OUTLINE**

Unit 1: Introduction to IoT

Unit 2: IoT Applications

Unit 3: Overview of IoT

Unit 4: Components and elements of IoT

Unit 5: Architecture of IoT system

Unit 6: Databases for IoT

Unit 7: Mobile integration to enable IoT

Unit 8: Security aspects of IoT

Unit 9: Privacy aspects of IoT

## **COURSE OUTCOMES**

- Acquire the knowledge and skills on Business Overview of IoT system
- Design and develop smart IoT Applications through Blynk
- Understand the Functional Components and Classification of the IoT Middleware
- Acquire the knowledge on AI for IoT
- Acquire the skills on Data Science, Analytic engine and Big data platform in IoT
- Understand the API Design Considerations for the IoT
- Manage smart IoT projects through different platform

## **TOOLS/SOFTWARE USED**

- Arduino
- MQTT
- RapidMiner
- Raspberry Pi

## **HANDS-ON**

Participants will have guided hands-on sessions on IoT to get firsthand knowledge about IoT and backbone technologies (cloud computing, business analytics, etc.) needed to build IoT applications. During this session they will gain understanding of several factors in building a successful IoT system.

The program consists of three hands-on sessions, three hours duration each.

**Hands-on 1:** Implementing the Internet of Things (IoT) using Nabto infrastructure through a live cloud service. In this session, participants will learn FreeRTOS+Nabto based Internet-of-Things that is live and available to connect any time. The demo provides access to live data and the FreeRTOS command console. Participants will also learn about implementing the Internet of Things (IoT) using Nabduino. Nabduino is a prototype board, providing you with access to Nabto's patented technology, which automatically creates a direct encrypted connection to a device behind a firewall. Using this demo participants can perform operations on LED, Buttons, Temperature, PWM (Pulse-width modulation), Analog In and Digital IO.

**Hands-on 2:** Setup and configure a private cloud for IoT application deployment and infrastructure maintenance using OpenNebula, an open source private cloud tool. Further, participants will also perform business analytics on an IoT application data (including data loading, data preparation, data cleaning and analysis operations) using an open source BA tool RapidMiner.

**Hands-on 3:** Setup and configure an IoT platform such as Carriots and Evrythng. Further, participants will also perform building applications and managing devices connected to Internet.

## **WRITTEN ASSESSMENT**

As part of the written examination, each participant will be assessed individually on the last day of the training for their understanding of the subject matter and ability to evaluate, choose and apply them in specific context and also the ability to identify and manage risks. The assessment focuses on higher levels of learning in Bloom's taxonomy: Application, Analysis, Synthesis and Evaluation.

This written examination will primarily consist of 40 multiple choice questions spanning various aspects as covered in the program. It is an individual, competency-based assessment.