



HCIA-IoT v2.5

Target Audience

IoT beginners, IoT practitioners, IoT solution engineers, IoT development engineers

Prerequisites

Basic ICT knowledge.

Objectives

Upon completion of this training, you will have an understanding of:

- 1. IoT development history
- 2. Basic IoT concepts
- 3. Layers of the IoT architecture
- 4. Common problems in smart cities and the corresponding solution
- 5. Pain points of smart campus management and the corresponding solution
- 6. Requirements for reducing the power consumption of smart grids
- 7. Driving forces of IoV development
- 8. Requirements and challenges of industrial IoT.
- 9. Technologies such as 5IABCDE and the development trends of smart connectivity of everything.
- 10. Problems faced by IoT
- 11. IoT security technologies of Huawei
- 12. Typical IoT security cases of Huawei
- 13. Common wired IoT communications technologies
- 14. Technical standards and features of different short-range wireless communications technologies
- 15. Characteristics and development trends of cellular mobile communications technologies
- 16. Features of different LPWA communications technologies
- 17. Evolution and industry development of NB-IoT standards
- 18. Technologies and characteristics of key NB-IoT
- 19. Application scenarios and solutions of NB-IoT
- 20. Evolution and industry development of 5G standards
- 21. Key technologies and key points of 5G communications
- 22. Three 5G scenarios and applications in these scenarios
- 23. Three 5G business solutions
- 24. Basic concepts and functions of industrial IoT gateways
- 25. Key technologies of industrial IoT gateways
- 26. Huawei industrial IoT gateway products and features

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- 27. Application scenarios of Huawei industrial IoT gateways
- 28. Functions of home IoT gateways
- 29. Architecture of Huawei Smart Home Solution
- 30. Huawei home IoT gateway products
- 31. Requirements for IoT platforms
- 32. Functional architecture of the HUAWEI CLOUD IOT platform
- 33. Services provided by the HUAWEI CLOUD IoT platform and their differences
- 34. Characteristics of the HUAWEI CLOUD IoT platform
- 35. The main content of product development
- 36. The main development process on the device side
- 37. The process of invoking APIs developed on the application side.
- 38. The content and operation process of routine cloud management
- 39. Basic knowledge and development history of the OS
- 40. Functions of IoT OS
- 41. Huawei LiteOS
- 42. Application cases of Huawei LiteOS
- 43. Basic knowledge of sensors
- 44. Core components of the single-chip microcomputer
- 45. LiteOS architecture
- 46. Basic kernel modules of LiteOS, principles of each module, and module functions
- 47. LiteOS functions
- 48. Functions of LiteOS application programming interfaces (APIs)
- 49. Different AT commands for NB-IoT, Wi-Fi, and Huawei-certified modules
- 50. Network access for NB-IoT and Wi-Fi modules

Duration

5 working days,

Content

- 1. IoT Development History and Overview
- 1.1 IoT Development History
- 1.2 IoT Overview and Architecture
- 1.3 Huawei IoT solution
- 2. IoT Network Applications and Solutions
- 2.1 Smart City Solution
- 2.2 Intelligent Campus Solution





2.3 Intelligent Grid Solution2.4 IoV Solution (IoV & DRIS)2.5 Industrial IoT Solution2.6 IoT Application Development Trend

- 3. IoT Security Technologies
- 3.1 Typical IoT Security Cases
- 3.2 IoT Security Architecture of Huawei
- 3.3 Typical IoT Security Cases of Huawei
- 4. Common IoT Communications Technologies
- 4.1 Wired Communications Technologies
- 4.2 Wireless Communications Technologies

5. NB-IoT Communication Technology Solution
 5.1 Evolution and Industry Development of NB-IoT Standards

- 5.2 Key NB-IoT Technologies
- 5.3 NB-IoT Solution Overview
- 6. 5G Communications Technologies and Solutions
 6.1 Evolution and Industry Development of 5G Standards
 6.2 Key 5G Technologies
 6.3 Three 5G Application Scenarios
- 6.4 Introduction to 5G Business Solutions
- 7. Industrial IoT Gateway
- 7.1 Industry IoT Gateway Overview
- 7.2 Edge Computing
- 7.3 Mesh Networking
- 7.4 Huawei Industrial IoT Gateway Products
- 7.5 Application Scenarios of Huawei Industrial IoT Gateways
- 8 Home IoT Gateway
- 8.1 Home IoT Gateway Overview
- 8.2 Huawei Smart Home Solution and HiLink Platform
- 8.3 Huawei Home IoT Gateway Products

9 IoT Platform

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- 9.1 Origin of OceanConnect IoT Platform
- 9.2 Introduction to HUAWEI CLOUD IoT Platform
- 9.3 Characteristics of the HUAWEI CLOUD IOT Platform
- 10. IoT platform Secondary Development
- 10.1 Introduction to Platform Secondary Development
- 10.2 Product development
- 10.3 Development on the application side
- 10.4 Development on the device side
- 10.5 Cloud-based Routine Maintenance
- 11 IoT OS
- 11.1 OS History
- 11.2 Overview of the IoT OS
- 11.3 Huawei LiteOS Applications
- 12 Perception Layer Development
- 12.1 Overview of E2E Integrated Development
- 12.2 Hardware Development: Introduction to the MCU and Sensors
- 12.3 Software Development: Basic Architecture of Huawei LiteOS
- 13. AT Commands for Communications Modules
- 13.1 Introduction to AT Commands
- 13.2 Development on the Communication Module Side