



Training course outline

ITU Centres of Excellence Network for Asia-Pacific
China Academy of Information and Communications Technology

Title	The Key Technologies of IoT and Its Application in Smart Home
Modality	Online through ITU Academy platform
Dates	15-26 August 2022
Duration	2 weeks
Registration deadline	12 August, 2022
Training fees	Free
Description	This course will help the participants to build the knowledge of technical evolution, principals, standards progress, typical implication scenarios, and future development trend of key technologies relating to IoT, such as WIFI and WIFI 6, Bluetooth and mesh, NFC, wireless charging, Low-Power Wide-Area Wireless Technology (LPWA), etc. And let the participants obtain the general knowledge of smart home, including network and terminal technologies, practices and innovative development of operators in the field of smart home, and the security issues and challenges faced and the main security technologies used in smart home.
Code	22OI27824ASP-E

1.LEARNING OBJECTIVES

- to introduce the technical evolution, principals, standards progress, typical implication scenarios, and future development trend of key technologies relating to IoT, such as WIFI and WIFI 6, Bluetooth and mesh, NFC, wireless charging, Low-Power Wide-Area Wireless Technology (LPWA), etc.
- to introduce the network and terminal technologies in the fields of smart home, such as main technologies used in smart terminals, the cloud computing and cloud platform, AI technologies application, etc.
- to introduce the security issues and challenges faced and the main security technologies used in the field of smart home.
- to introduce the relevant test principals and methods in the field of smart home.



2. LEARNING OUTCOMES

The course is expected to achieve the following outcomes:

- to understand the technical evolution, principals, standards progress, typical implication scenarios, and future development trend of key technologies relating to IoT, such as WIFI and WIFI 6, Bluetooth and mesh, NFC, wireless charging, Low-Power Wide-Area Wireless Technology (LPWA), etc.
- Know about the network and terminal technologies in the fields of smart home, such as main technologies used in smart terminals, the cloud computing and cloud platform, AI technologies application, etc.
- understand the practices and innovative development of operators in the field of smart home.
- learn about the security issues and challenges faced and the main security technologies used in the field of smart home.

3. TARGET POPULATION

This training is targeted at managers, engineers and employees from regulators, government organizations, telecommunication companies and academia, who are interested in IoT and smart home. Other institutions and individuals that are interested in building their capacity related to ICT Application are also welcome to participate.

4. ENTRY REQUIREMENTS

The participants are expected to have basic knowledge of ICT.

5. TUTORS/INSTRUCTORS

Experts from CAICT, operators, equipment providers and other partners.

6. TRAINING COURSE CONTENTS

1. The Introduction Key Wireless Technologies applied in IoT

- Wi Fi
- Bluetooth
- NFC
- Wireless Charging

2. The Development trend and Application of Cellular Internet of Things (IoT)

- What is IoT, Cellular IoT (C-IoT)?
- What is Low-Power Wide-Area Wireless Technology (LPWA) for IoT?
- Ready for LPWA to transform your future?
- Introduction of the Narrowband Internet of Things (NB-IoT), Long Range (LoRa), SigFox, LTE-M (eMTC)
- Comparison of various Internet of things (IoT) technologies

3. The Application of AI and Cloud Computing in Smart Home

- Development of artificial intelligence technology in the field of smart home
- Prediction of its future development
- Evolution and main business scenarios of cloud platform
- Cloud computing technology in smart home field

4. Smart Appliances and Intelligent Terminals Used in Smart Home and the Application of Smart Home in Real Estate

- Mainstream communication technology
- Main application scenarios and development trends
- Development trend of smart home in real estate

5. Operator's Practices in Smart Home

- Introduction to the development of operators in the field of smart home,
- Main technical principles
- Development trend of intelligent gateway and edge computing

6. The Security Issues in Smart Home

- Introduction to the challenges faced by smart home security
- Main security technologies used

7. The Testing Principle and Methods in Smart Home

- Module test
- Product test
- System test, etc

8. The policies and experiences on promoting interoperability in China

- Interconnection vision and development of Open Link Association (OLA)

7. TRAINING COURSE SCHEDULE

Week / Session	Topic	Exercises and interactions
Week 1	The key technologies of IoT	The participants are required to review and learn the course materials by themselves. Quiz will be provided to evaluate the learning effects of participants, and tutors will be online to respond to any questions raised by participants.
Week 2	The application of IoT_smart home	The participants are required to review and learn the course materials by themselves. Quiz will be provided to evaluate the learning effects of participants, and tutors will be online to respond to any questions raised by participants.

8. METHODOLOGY (Didactic approach)

Course Materials: The relevant course material will be made available on the website, which will include presentations, practical cases introduction, etc.

Online Discussion Forums: Participants are expected to participate actively in discussion forums on selected topics throughout the week.

Chat Sessions: Online chat sessions with the Tutor will take place on Wednesday from 14:00 – 15:00 Hrs. Beijing Time (GMT+8). All participants are expected to join the chat sessions to interact with tutors.

Quizzes: **2 mandatory online quizzes** will be held at the end of each week of the course

Assignment: There will be a **mandatory assignment** for the course



9.EVALUATION AND GRADING

Besides the tests and their assignment score, participants will be evaluated according to their substantive posts on the discussion forum and other course activities, reflecting both the quantity and quality of time spent on the course. The evaluation details and criteria for certificates is as follows.

Quiz1:	30%
Quiz2	30%
Individual Assignment	30%
Discussion Forum	10%
Total Evaluation:	100%

10.TRAINING COURSE COORDINATION

Course coordinator: Name:WANG Ying Email address: wangying@caict.ac.cn	ITU coordinator: Name:Sean Sharidz Doral Email address:sean.doral@itu.int
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