



Training course outline

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

Title	Technology, Standardization, Testing and Application Scenarios in C-V2X
Modality	Online through ITU Academy platform
Dates	17-29 October 2022
Duration	2 Weeks
Registration deadline	16 October 2022
Training fees	Free
Description	This course will help the participants to know about the development of Internet of Vehicles industry from the aspects of technology and standardization, the technology and testing of platform, application scenarios of Internet of Vehicles, and the practices of activities in associates and China. Let the participants build the general knowledge of V2X in C&I area.
Code	22OI27830ASP-E

1. LEARNING OBJECTIVES

- to understand the development of the Internet of Vehicles industry;
- to introduce the technology, communication standardization of C-V2X
- to introduce the technology and testing of V2X platforms and the testing activities in 5GAA and China
- to introduce the application scenarios of Internet of Vehicles

2. LEARNING OUTCOMES

The course is expected to achieve the following outcomes:

- Understand the basic C&I framework, the development and implementation of conformity assessment programmes;
- Understand the the technology, communication standardization progress of C-V2X ;
- The knowledge of application scenarios of Internet of Vehicles
- The testing practices and activities in 5GAA and China relating to V2X.

3. TARGET POPULATION

This training is targeted at managers, engineers and employees from regulators, government organisations, telecommunication companies and academia, who are interested in understanding,



the development trend, platform, standards, application scenarios and testing technologies and practices relating to V2X. Other institutions and individuals that are interested in building their capacity related to Conformity and Interoperability 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

	Title of the course presentation	Main contents
1	Development of Internet of Vehicles Industry	1)Definition of Internet of Vehicles 2)Technical system and key technologies 3)Industrial ecological evolution
2	C-V2X Communication technology	1)C-V2X architecture 2)LTE-V2X technical features 3)NR-V2X technical features 4)Enhancements in future
3	Overview of C-V2X standardization	1)Progress on C-V2X Standardization in 3GPP 2)Progress on C-V2X Standardization in SAE 3)Progress on LTE-V2X Standardization in China
4	Technology and testing of V2X platform	1) Key technologies of V2X platform 2) Classification of V2X platform 3) V2X platform Testing
5	Application scenarios of Internet of Vehicles	1) Typical Application Scenarios of V2V 2)Typical Application Scenarios of V2I 3)Typical Application Scenarios of V2C
6	Testing and practice of Internet of Vehicles	1) Practice activities in 5GAA 2)C-V2X “Cross-layer” Interconnectivity Application 3)Practices in China

7.TRAINING COURSE SCHEDULE

Week / Session	Topic	Exercises and interactions
Week 1	The general development, communication technology and standards progress of Internet of Vehicles	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	Testing technologies and practices, and application	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



	scenarios of Internet of Vehicles	will be online to respond any questions raised by participants.
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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%

IMPORTANT: A PASSING MARK OF 60% IS REQUIRED FOR OBTAINING A COMPLETION CERTIFICATE.

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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