

CANoe .J1939

Agenda VectorAcademy

Delivery Format:	This course is offered in Classroom or in Remote Format
Duration:	Classroom: 2 days Remote: 14 hours
Target Group:	Users and developers.
Prerequisites:	Fundamentals of CAN Protocol, Basic CANoe knowledge
Goal:	Fundamentals of SAE J1939 protocol, CANoe.J1939 enhancements for practical usage

1. J1939 Documents, Topology, Baud Rates, Terms and Definitions

- > Structure of the J1939 specification documents
- > Typical baud rates and net topologies

2. J1939 Network Management

- > Terms: NAME and addresses in the J1939 protocol > Boot-Up behavior "Address Claiming" of ECUs
- > Conflict handling at network access

3. The Parameter Group as a Standardized Data Interface

- > Characteristics of a J1939 Parameter Group
- > Differences to a CAN identifier

4. Communication Principles and Addressing

- > Interpretation of the 29-bit CAN identifier
- > Mechanisms of realizing peer-to-peer and global communication of J1939 ECUs

5. Signal Description and J1939 SLOT Definitions

- > The J1939 SPN and SLOT definition
- > Scaling and timing of signals
- > Potential requirements for switching from proprietary network to J1939

6. Transport Protocols

- > Broadcast Announce Message (BAM)
- > Connection Mode Data Transfer

7. Overview of the J1939 Diagnostic Interface

- > OBD II
- > Interpretation of the Diagnostic Trouble Code (DTC)
- > Overview: Common J1939 Diagnostic Messages

8. Network Definitions with the J1939 Database (CANdb++)

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- > Data description in a J1939 database
- > Definition of Parameter Groups, signals and attributes
- > Description of peer-to-peer and global communication
- > Differences between a standard CAN and a J1939 database

9. Main Functions of CANoe.J1939

- > Enhancement of analyzing functionality by protocol context in Trace-, Data- and Graphics-Windows as well as data logging
- > Working with the J1939 plug-ins: Network Scanner, Node Filter, GPS enhancements
- > Hands-On training on PC

10. Working with the J1939 Node Layer Interface (only CANoe)

- > Introduction of the CAPL programming environment
- > Working with the CAPL Node Layer API for usage of special J1939 protocol context
- > Working with J1939 Interaction Layer Introduction into J1939 CAPL Programming Language
- > Hands-On training on PC