CAN Fundamentals
Agenda VectorAcademy

Duration: 1 Day, 7h
Target Group: CAN Users
Prerequisites: None
Goal: Knowledge about serial bus systems in motor vehicles, physical characteristics of a CAN network and characteristics of the CAN and CAN FD protocol. Also we introduce the basics of a CAN network description.

Pedagogical, technical and supervisory resources:
- A course material is given to each trainee.
- An Editor for CAN database CANdb++
- The training sessions will be held in suitable rooms (meeting rooms)
- Trainer’s competence: 15 years of experience in training related to embedded developments, network architectures.

Method of follow-up of the trainee:
A release sheet must be validated by the trainee. A first satisfaction questionnaire is planned at the end of the training.

1 | Introduction to CAN

  > Electronification of motor vehicles
  > Primary tasks in bus networking
  > Standards and implementation
  > Node architecture, bus-connection and termination
  > Voltage levels and corresponding bit values
  > Physical failures

2 | Characteristics of the CAN Protocol

  > Addressing, message transmission and reception
  > Bus access method and arbitration
  > Message types, detailed description of the structure and functions
  > Increase noise immunity, neutralize errors
  > Error detection mechanisms
  > Error treatment & tracking
  > Motivation for the bit time interval
  > Relation of baud rate and length of the CAN bus
  > Synchronization and resynchronization

3 | CAN FD

  > Motivation for CAN FD
  > Message formats and structure
  > Larger data field and the consequences
  > Bit rate switching

4 | CAN Network Description

  > Usage and content of Network Description
  > Tools and Examples