multisoft
Systems

CAN BUS Training

COURSE CONTENT

About Multisoft

Train yourself with the best and develop valuable in-demand skills with Multisoft Systems. A leading certification training provider, Multisoft collaborates with top technologies to bring world-class one-on-one and certification trainings. With the goal to empower professionals and business across the globe, we offer more than 1500 training courses, which are delivered by Multisoft's global subject matter experts. We offer tailored corporate training; project Based Training, comprehensive learning solution with lifetime e-learning access, after training support and globally recognized training certificates.

About Course

CAN BUS Training by Multisoft Systems is designed to provide in-depth knowledge of Controller Area Network (CAN) technology, widely used in automotive, industrial automation, medical devices, and embedded systems. This course builds a strong foundation in CAN protocol concepts, enabling learners to understand how reliable, real-time communication occurs between electronic control units (ECUs).

Module 1: Introduction to CAN BUS

- ✓ Overview of Controller Area Network (CAN)
- ✓ History and evolution of CAN protocol
- ✓ Applications of CAN in automotive and industrial systems
- ✓ Advantages and limitations of CAN BUS
- ✓ CAN vs LIN vs FlexRay vs Ethernet (overview)

Module 2: CAN BUS Architecture

- ✓ CAN network topology
- ✓ CAN nodes and their components
- ✓ CAN controller and transceiver
- ✓ Bus lines, termination, and wiring rules
- ✓ Physical layer basics

Module 3: CAN Data Frames and Message Structure

- ✓ Standard CAN (11-bit ID) and Extended CAN (29-bit ID)
- ✓ CAN frame format (SOF, Arbitration, Control, Data, CRC, ACK, EOF)
- ✓ Data length and payload
- ✓ Remote frames and error frames
- ✓ Message prioritization concept

Module 4: CAN Arbitration and Communication

- ✓ CSMA/CR (Carrier Sense Multiple Access with Collision Resolution)
- ✓ Arbitration process using message identifiers
- ✓ Bit-wise arbitration mechanism
- ✓ Message transmission and reception flow
- ✓ Bus access method

Module 5: Bit Timing and Baud Rate

- ✓ Bit timing concepts
- ✓ Time segments and synchronization
- ✓ Sample point and propagation delay
- ✓ Baud rate configuration
- ✓ Relationship between baud rate and bus length

Module 6: Error Detection and Fault Handling

- ✓ Types of CAN errors (bit, stuff, CRC, form, ACK)
- ✓ Error detection mechanisms
- ✓ Error counters and error states
- ✓ Error passive and bus-off conditions
- ✓ Fault confinement concept

Module 7: CAN Network Design Rules

- ✓ Cable length and termination resistance
- ✓ Grounding and shielding
- ✓ Noise immunity and EMC considerations
- ✓ Best practices for reliable CAN communication

Module 8: CAN FD (Flexible Data Rate)

- ✓ Introduction to CAN FD
- ✓ Differences between Classical CAN and CAN FD
- ✓ CAN FD frame format
- ✓ Bit rate switching
- ✓ Use cases of CAN FD in modern vehicles

Module 9: CAN BUS Diagnostics (Overview)

- ✓ Basics of diagnostics over CAN

- ✓ Introduction to UDS and OBD (overview)
- ✓ Diagnostic request and response concept
- ✓ Role of CAN in ECU diagnostics

Module 10: CAN Tools and Practical Analysis

- ✓ CAN interfaces and hardware tools
- ✓ Introduction to CAN analysers and sniffers
- ✓ Monitoring CAN traffic
- ✓ Interpreting CAN messages and signals
- ✓ Logging and analysis of CAN data