

MICROSAR Ethernet Basic Course

Agenda VectorAcademy

Delivery Format:	This Course is offered in Blended Learning Format. The content will be learned via E-Learning in a period of two months and there will be one accompanying Remote Q&A session per month.
Duration:	8 hours (aprox. needed time for self-study)
Target Group:	ECU developers who would like to enhance their knowledge about Ethernet
Prerequisites:	Knowledge about software development for automotive systems
Goal:	Obtain a first impression on the usage of Ethernet in an AUTOSAR based ECU.

1. Overview and introduction

- > Motivation for Ethernet in vehicles
- > Difference to traditional vehicle networks
- > Protocols and History of Ethernet in AUTOSAR

2. Basics of Ethernet and TCP/IP

- > PHY: MDI/MII, most commonly used PHY layers and ECU Hardware setup
- > MAC/VLAN Data Link Layer addressing and Switches
- > Internet Protocol IPv4/IPv6 Network Layer addressing and routers
- > Transport Protocols (UDP, TCP), Transport Layer addressing
- > ARP, NDP, ICMP, DHCP

3. Ethernet in the AUTOSAR Software Architecture

- > Socket based communication using TCP/IP vs. PDU and Signal based communication in traditional vehicle networks
- > Approach in AUTOSAR (SOAD + PDU Container)
- > AUTOSAR Software Architecture

4. Overview of Automotive Protocols and use cases

- > Requirements emerging from modern E/E architecture and distributed system approach
- > Summary of protocols SOME/IP(-SD), DoIP, TSN, AVB, XCP