

# Communication Design with PREEvision (CAN + Ethernet)

Agenda VectorAcademy

<b>Delivery Format:</b>	This course is offered in Classroom <b>or</b> in Blended Format
<b>Duration:</b>	Classroom: 4 days Blended: 28 hours
<b>Target Group:</b>	Architects and engineers in charge of designing communication in CAN and Ethernet-based architectures.
<b>Prerequisites:</b>	Basic understanding of serial communication systems in the automotive area
<b>Goal:</b>	Modeling communication in PREEvision

## 1. Concepts of PREEvision

- > PREEvision as a product for the whole architecture management
- > Development process
- > Layer model

## 2. Introduction to PREEvision

- > Starting PREEvision the first time
- > Projects
- > Perspectives and views
- > Diagrams and tables
- > Traceability and navigation
- > Multi-User Mode: Lock / Commit

## 3. Introduction to Communication in AUTOSAR Classic

- > AUTOSAR communication concept (SW-driven)
- > Signal, PDU and Frame
- > Basics of the CAN-Protocol

## 4. Introduction to Ethernet in ISO/OSI Layers

- > Motivation for Ethernet and IP in vehicles
- > Overview of used physical layers, topologies and network architectures
- > Ethernet II Frame, bus access methods, addressing, VLAN, switch
- > IP Basics: IP packet, IP addresses, IP routing
- > TCP segments and UDP packets, ports, connection-oriented and connectionless communication
- > Introduction to service-oriented communication with SOME/IP

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### 5. Overview Software Design

- > Software Architecture Structure
- > Library approach: Type – Prototype – Instance
- > Services and Service Interfaces
- > Service Implementation

### 6. Network Topology Design

- > Creation of components
- > Design of switched networks
- > Using types and clusters
- > High Performance Computer design

### 7. Software and Service Deployment

- > Software component mapping
- > Service deployment

### 8. Communication Synthesis

- > Signal routing
- > Packaging Signals into CAN Frames

### 9. Ethernet communication definition

- > Ethernet Socket adapter configuration
- > Ethernet Controller specific settings
- > VLAN creation and assignment
- > IP address definition
- > Socket address definition

### 10. Service Discovery

- > Service Discovery configuration
- > Export AUTOSAR System Description to CANoe

### 11. Outlook

- > Switch Configuration (VLAN Tagging, QoS)
- > Introduction to AUTOSAR Adaptive and combined systems
- > Performing consistency checks

### 12. Questions, Feedback, Suggestions