

AUTOSAR Basics

Duration:	1 day
Target Group:	Project leader, developer, user
Prerequisites:	Knowledge about software development for automotive systems

1 Overview and Aims (0,5 h)

Target: General view of AUTOSAR and its aims

Contents: E/E-development today and tomorrow, basics, background, motivation, aims, features, organisation, schedule

2 Introduction to AUTOSAR (1,0 h)

Target: Understand the basic principals and technical concepts of AUTOSAR

Contents: Software components, VFB (Virtual Functions Bus), RTE (Runtime Environment), BSW (Basic Software Modules), demonstration of a completed model

3 Methodology of AUTOSAR (1,0 h)

Target: Understand the AUTOSAR methodology

Contents: Overview, system configuration, ECU configuration, software component development, methodology from the view of an OEM and supplier, data exchange formats

4 AUTOSAR RTE (1,0 h)

Target: Understand the basic principles of the RTE (Runtime Environment)

Contents: Interfaces with applications and basic software, mode of operation of the RTE, communication mechanisms

5 AUTOSAR BSW (0,5 h)

Target: Overview of the AUTOSAR BSW (Basic Software Modules)

Contents: Explanation of the most important BSW concepts (Operating system, communication, mode management, diagnostics, IO), concrete example of a CAN-ECU

6 AUTOSAR in Practice (1,0 h)

Target: Demonstration of an AUTOSAR tool

Contents: Development support by tool on AUTOSAR systems demonstrated with DaVinci Tool Suite, presentation of the Vector AUTOSAR Demonstrators

7 Implications and Migration (1,0 h)

Target: Implications of AUTOSAR as well as the presentation of different migration scenarios

Contents: Which implications and repercussions does the employment of AUTOSAR have? Presentation of different migration scenarios from the point of view of the application and the BSW

AUTOSAR in practice

Duration:	3 days
Target Group:	ECU developers of automobile suppliers and OEMs
Prerequisites:	Participation of the AUTOSAR workshop or good AUTOSAR knowledge

1 Overview and introduction (0,75 h)

Objective: Combinations of AUTOSAR, MICROSAR, DaVinci

Topics: Mapping between AUTOSAR methodology and the Vector tool chain

2 Operating system (1 h)

Objective: Basic understanding of the mediums and mechanisms of the AUTOSAR operating system

Topics: Tasks, alarms, events, AUTOSAR CC

3 Software components (2,25h)

Objective: Handling of DaVinci developer and RTE

Topics: Design of software components, ports, connections, task mapping and creation of the RTE, exercises

4 Input and output (3,5 h)

Objective: Data exchange with I/O modules

Topics: Configuration of the basic software for the I/O with the MICROSAR configuration suite, exercises

5 Communication (3 h)

Objective: Data exchange with CAN

Topics: Configuration of the basic software for the communication with the MICROSAR configuration suite, exercises

6 State management and system services (2 h)

Objective: Sleep and wake up of ECUs and bus

Topics: Configuration of the basic software-manager-components, exercises

7 Bus systems (1,5 h)

Objective: Understanding of the conceptual differences of the bus systems and the importance for the configuration of the basic software

Topics: CAN, LIN, FlexRay

8 Memory accesses (2,5 h)

Objective: Memory accesses with AUTOSAR

Topics: Configuration of the basic software for memory accesses, exercises

9 Diagnostics (2,5h)

Objective: Diagnostics with AUTOSAR

Topics: Configuration of the diagnostics basic software by the MICROSAR configuration suite, exercises

10 Highlights of the OEMs (2,5 h)

Objective: Information of AUTOSAR at the OEMs

Topics: Which function of the AUTOSAR standard is used at the corresponding OEM.