

# AUTOSAR Classic Platform Basic Course

Agenda VectorAcademy

<b>Delivery Format:</b>	This Course is offered in Classroom <b>or</b> Remote Format.
<b>Duration:</b>	Classroom: 4 days Remote: 28 hours
<b>Target Group:</b>	Project Leader, AUTOSAR ECU_Developer and User
<b>Prerequisites:</b>	Knowledge about software development for automotive systems
<b>Goal:</b>	At the end of the training, the trainee will be able to use the AUTOSAR tool.

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**Evaluation:**

Validation of learning based on practical exercises with MICROSAR.

**Pedagogical, technical and supervisory resources:**

Course material is sent to each trainee. The training will be carried out in adapted rooms.

Competence of the trainer: experienced engineer on AUTOSAR

**Method of follow-up of the trainee:**

A sign-off sheet must be validated by the trainee. A first satisfaction questionnaire is planned at the end of the training.

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**1. AUTOSAR Fundamentals: Overview and Objectives**

- > Motivation and aims
- > Organization, schedule

**2. Introduction to AUTOSAR**

- > Basic principles and technical concepts
- > Tasks, alarms, events, etc
- > SWC (software components) and RTE (runtime environment)

**3. AUTOSAR RTE**

- > Interfaces with application and basic software
- > Mode of operation of the RTE

**4. AUTOSAR BSW**

- > Explanation of the most important BSW (basic software) concepts

**5. Methodology of AUTOSAR**

- > Overview and data exchange formats (ECU Extract, ECUC, ...)
- > Methodology from the view of an OEM and supplier

**6. AUTOSAR in Practice**

- > Development of AUTOSAR systems demonstrated with Vector's DaVinci Tool Suite

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### 7. Implications and Migration

- > Presentation of different migration scenarios from the point of view of the application and the BSW

### 8. AUTOSAR in Practice: Overview and Introduction

- > Relation between AUTOSAR, the Vector Implementation MICROSAR and the DaVinci Tools
- > Mapping between AUTOSAR methodology and the Vector tool chain

### 9. Operating System

- > Basic understanding of the mediums and mechanisms of the AUTOSAR operating system
- > Tasks, alarms, events, etc.
- > AUTOSAR OS Scalability classes

### 10. Software Components (with Exercises)

- > Handling of DaVinci Developer and RTE
- > Design of software components, ports, connections, task mapping and generation of the RTE with the DaVinci Tools (Developer, Configurator)

### 11. Input and Output (with Exercises)

- > Data exchange with I/O modules
- > Configuration of the basic software for the I/O with the DaVinci Tools (Developer, Configurator)

### 12. Communication (with Exercises)

- > Data exchange over CAN
- > Configuration of the basic software for the communication with the DaVinci Tools (Developer, Configurator)

### 13. State Management and System Services (with Exercises)

- > Sleep and wake up of ECUs and bus
- > Roles of the modules ComM, EcuM and BswM
- > Configuration of the Mode Management with the DaVinci Tools (Developer, Configurator)

### 14. Bussystems (Material for reference)

- > Understanding the conceptual differences of the bus systems
- > Importance of the configuration of the basic software
- > CAN, LIN, FlexRay, Ethernet

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## 15. Non-volatile Memory Access (with Exercises)

- > Access to non-volatile memory
- > Configuration of the basic software for the memory with the DaVinci Tools (Developer, Configurator)

## 16. Diagnostics (with Exercises)

- > Diagnostics with AUTOSAR
- > Configuration of the diagnostics basic software with the DaVinci Tools (Developer, Configurator)