

# Certified Embedded Associate AUTOSAR Classic (CEA.C)

Agenda VectorAcademy

<b>Delivery Format:</b>	Exam
<b>Duration:</b>	Exam: 45 Minutes, individual preparation time
<b>Target Group:</b>	Project Leader, AUTOSAR ECU Developer and User
<b>Prerequisites:</b>	Knowledge of the contents taught in the AUTOSAR Classic Platform course (see agenda)
<b>Goal:</b>	Obtain certification that verifies your knowledge in the topics listed here

## 1. AUTOSAR Fundamentals: Overview and Objectives

- > Motivation and aims
- > Organization, schedule

## 2. Introduction to AUTOSAR

- > Basic principles and technical concepts
- > 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

## 7. MICROSAR SIP

- > Basic knowledge about the Vector MICROSAR SIP

## 8. Tooling

- > Fundamental use of the DaVinci Tools

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### 9. 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

### 10. Operating System

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

### 11. 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)

### 12. 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)

### 13. Communication (with Exercises)

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

### 14. 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)

### 15. Bussystems (Material for reference)

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

### 16. 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)

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## 17. Diagnostics (with Exercises)

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

## 18. VECTOR

- > Communication Channels to Vector