AUTOSAR Classic Platform Basic Course

Agenda VectorAcademy

Delivery Format:	This Course is offered in Classroom **or** Blended Learning Format. In the case of Blended Learning the content will be learned via E-Learning in a period of three weeks and there will be 5 accompaning remote sessions.
Duration:	Classroom: 4 days Blended Learning: approx. 30 hours of selfstudy + 11 hours of remote sessions (see schedule below)
Target Group:	Project Leader, AUTOSAR ECU_Developer and User
Prerequisites:	Knowledge about software development for automotive systems
Goal:	General view of AUTOSAR Classic Platform

1. **AUTOSAR Fundamentals: Overview and Aims**
   - 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. **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

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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

15. Nonvolatile Memory Access (with Exercises)

- Access to nonvolatile 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)

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Schedule Blended Learning:

Day	Live Sessions	Study Phase	Content	Time Needed (Average)
1	Preparation Session			
2		1	Fundamentals	Content ~3-4 h
3	Question & Answer for Study Phase 1			
4		2	▸ Overview and Introduction ▸ Operating System ▸ Software Components ▸ Exercise	Content ~3 h Exercises ~1-2 h
5				
6	Question & Answer for Study Phase 2			
7		3	▸ Input Output (I/O) ▸ Exercise ▸ Communication ▸ Exercise ▸ State Management and System Services ▸ Exercise	Content ~3-4 h Exercises ~4-5 h
8				
9	Question & Answer for Study Phase 3			
10		4	▸ Nonvolatile Memory Access ▸ Exercise ▸ Diagnostics ▸ Exercise	Content~3-4 h Exercises ~ 3-4 h
11				
12				
13	Question & Answer for Study Phase 4			