AUTOSAR – Diagnostic Stack (64 Hrs)

AUTOSAR – Diagnostic Stack
Agenda from ANCIT

Delivery Format	:	This Course is offered in Classroom or Online Format
Duration	:	64 Hours (8 days)
Target Group	:	Automotive Embedded Engineers
Prerequisites	:	Knowledge about software development for automotive systems
Outcome	:	AUTOSAR Architecture, AUTOSAR Stack Configuration, UDS, Implementation & Testing with more emphasis on Diagnostics Stack

Day 1. AUTOSAR (ASWC, RTE and OS)

- Overview and Introduction to Architecture
- Application Design in VFB Level
- Software Component
- Implement ASWC in tool
- RTE Layer introduction
- Implement RTE
- Explore different combinations of interfaces for communication betweenASWC's
- RTE mapping
- OS
- Implement OS
- Debugging and Understanding the Code flow

Day 2. Intro to Communication Stack

- Communication Module
- PDUR
- CANIF
- CAN Driver
- CAN Transceiver
- IPDUM
- CAN TP
- Implementation of Communication Stack in AUTOSAR tool

Memory Stack

- EEPROM driver
- Flash Driver
- Fee
- EA
- MemIf
- NVM
- Memory stack Implementation in DAVINCI from Non volatile memorySWC
    - NvM block with RAM block
    - NvM block without RAM block
    - ECUM handling issues with NvM
    - NvM block with ROM block

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Day 3. UDS and CAN TP (CAN and CANFD)

- Diagnostics
- Why Diagnostic is needed?
- Onboard and Off-board Diagnostics
- Introduction to Vehicle Diagnostics
- Introduction to UDS
- Protocol Format
- Introduction to CANTP for CAN and CANFD
- UDS Negative Responses
- UDS Services(0x10, 0x3E,0x27, 0x22, 0x2E, 0x31, 0x28, 0x11, 0x14,0x19,0x85)
- Functional vs Non-Functional Diagnostics
- Reflashing and Calibration

Day 4. DEM, DCM, FIM and DET

- Implementation of the memory stack for Reading and writing data from and to memory.
- Functionalities of DEM
- Diagnostics Events and DTC
- Event Debouncing
- Snapshot and Extended data association with DID's
- NvM handling by DEM
- Event Aging
- Configuration of DEM on the tool
- Data flow from and to DCM
- DCM modules- DSL , DSP and DSD
- DET operations
- FIM module and its operations
- Handling the diagnostic description files
- Testing

Day 5 and Day 6. Implementation of the following services in the AUTOSAR Tool

- 0x10, 0x3E,0x27
- 0x2E, 0x22, 0x31-NVM Integration
- 0x11, 0x28-BSWM and ECUM Integration

Day 7 and Day 8

- 0x14,0x19,0x85-NVM Integration

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