

ISO26262 Automotive Safety (DE0204)

Automotive ISO26262: Road Vehicles Functional Safety

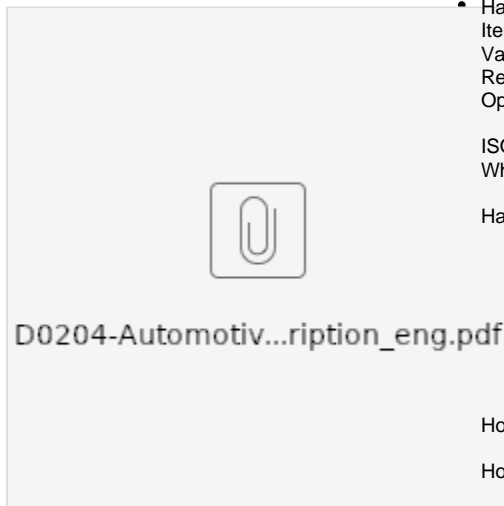
Who should attend

- Development Engineers (System, Hardware and Software)
- Product Managers
- Project Leaders of safety related development projects
- Managers responsible for establishing of work processes
- Quality managers or responsible

Duration: 4 days

Language: German or English, training material will be in English.

Brochure



Course topics:

- Functional Safety Overview / General Introduction
 - Why is Functional Safety needed in Automotive Industry?
- FS Management & Safety Life Cycle Requirements (ISO 26262 - Part 2)
 - Activities for Functional Safety Management
 - Safety Plan
 - Safety Life Cycle Management
- Risk Based Safety Requirements Engineering (ISO 26262 - Part 3)
- Item Definition
- Hazard Analysis & Risk Assessment
 - Safety Goal Definition with ASIL with examples and exercises
- Functional Safety Concept
 - Warning and degradation concept
 - System Development
- Technical Safety Concept (ISO 26262 - Part 4)
 - Safety Architecture and Architectural Elements
 - Safety Functions and Safety Integrity Function
 - Exemplification: typical solutions detailed in a technical safety concept, requirements allocation to system and ASIL Decomposition example
 - Verification: System Safety FMEA and FTA
- Hardware-Software-Interface Specification: The ISO solution for an old problem
 - Item integration and testing
 - Validation
 - Release for Production
 - Optional:
 - Dependant failure analysis (DFA)
- ISO 26262 lifecycle approach: Product Lifecycle and process requirements
 - Where is hardware development in the process model?
 - What are inputs to hardware development?H
- Hardware Development (ISO 26262 - Part 5)
 - HW Safety Requirements
 - HW Architecture and Design with examples
 - HW Architecture Evaluation
 - Introduction into Fault Tree Analysis with exercise
 - Requirements for the Evaluation: Metrics for Safety Goal Violation
 - Fault models, failure rates and target values
 - Presentation of the probabilistic approach
 - qualitative approach with a semi probabilistic argumentation
- How to evaluate the metric for "Safety Goal Violation"
 - exemplification: calculation via FTA based on the results of the quantitative FMEDA
- How to evaluate the metrics SPFM and LFM
 - exemplification: exida FMEDA approach for metric calculation
- HSI - Cooperation with the software team
 - Hardware-Software-Interface Specification HSI
- Qualification of HW components (ISO26262 - Part 8 § 13)
- Optional:
 - ASICs in the scope of the ISO 26262
 - Communication channels and their evaluation
 - Dependant failure analysis (DFA)
- Software Development Process (ISO 26262 - Part 6)
 - Content of the Software Safety Process, how to do initiation and tailoring
- Software Safety Requirements Specification:
 - Sources of Software Safety Requirements and interfaces to System Level
 - Interpretation of properties and attributes required by ISO26262
 - Practical methods how to derive and detail requirements for the software
 - Methods for the verification of Software Safety Requirements
- Software Architecture:
 - How to develop a Software Architecture acc. to ISO26262
 - Semi-formal architecture development - interpretation of ISO26262
 - Measures to be considered
 - ASIL Decomposition at the software level
 - How to implement Freedom from Interference
 - Safety requirements allocation to software architectural components
 - Methods for the verification of the Software Architecture
- Software Unit Design
 - Content of a semi-formal Software Unit Design Specification
 - Interpretation of design requirements recommended by ISO26262
 - How to deal with OO programming languages (C++)?
 - Methods for the verification of the software unit design
- Software Safety Verification
 - Software Analysis Techniques
 - Software Criticality Analysis

Scheduled courses

- Software Dependent Failure Analysis
- Software Testing Techniques (Unit and Integration Testing)
 - Requirements based (Equivalence Classes, Boundary Values, etc.)
 - Structure based (Statement Coverage, MCDC, Call Coverage, etc.)
- Tool classification and qualification
- Software qualification: How to deal with existing components?