Automotive Functional Safety

with the safety standard ISO 26262

Four-day Workshop with optional qualification as
Functional **S**afety **C**ertified **A**utomotive **E**ngineer (FSCAE)
and FMEDA Workbench Database Tool

New Workshop-Modules in *TÜV NORD*: We are pleased to announce, a four-day workshop session on the topic of Automotive Functional Safety and the ISO 26262 including the option of examination to become a certified **F**unctional **S**afety **C**ertified **A**utomotive **E**ngineer (FSCAE). The workshop will be provided in Augsburg the new ISO 26262 standard describes management of Functional Safety as the essential basis for the development of safety-relevant electronics in passenger vehicles. Participants who would benefit from this workshop include:

- Product safety and safety management engineers.
- Development engineers engaged in the design and testing of automotive control software, hardware, and systems.
- Managers seeking a better understanding of functional safety of automotive electronic systems and the ISO 26262 standard.
- Quality management professionals engaged in ISO 26262-compliance.

Those attending Days 2 & 3 will also receive the **FMEDA-Workbench database tool**, an excel-based calculation tool, developed exclusively by TÜV Nord for calculating failure rates AND metrics in accordance with ISO 26262 part 5 and IEC 62380. The workshop will take in 86150 Augsburg. Space is limited to a total of 20 participants. Registration is open until April 30, 2012 or until sessions are filled. To register, please fill in the attached form and return to Fax: 0821-450954-4269 or register online on www.tuev-nord.de by the registration deadline. If you have questions, call 0821-450-954-0 or email *bpfuff@tuev-nord.de*.

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Workshop Agenda

Day 1: Functional Safety Management Workshop

FSM and concept development, from Risk analysis to the functional safety concept, using ISO 26262 concepts

Considerations will be presented for implementing a Functional Safety Management (FSM) system, including tasks faced by both the responsible safety manager and safety coordinators. A general overview of the required processes, quality assurance system, complementary processes in development and extension of supporting processes will be shown. Its aim is to inform responsible persons and management in the development, test and quality departments to the implication of ISO 26262 to the company and its products and processes. A general introduction of the safety process is provided including documentation requirements and the management and technical activities during the overall safety life-cycle phases. The complete concept development phase, from the Risk analysis to the functional safety concept, is presented in practical exercises. Illustrative examples are used to highlight the risk analysis with risk assessment, the item definition requirements and the derivation of functional safety requirements.

Day 2 and 3: System Level and Hardware Level Implementation of ISO 26262 **System development, technical safety concept, system and hardware development. Evaluation of Safety Goals and Hardware Architecture using Failure Mode Effect and Diagnostic Analysis (FMEDA)**

This workshop addresses the technical concept design of a system and its elements. The topic of issues relating to interface definition (Development Interface Agreement – DIA) between the OEM and the supplier(s), including Second Tier supplier(s) is addressed. Knowledge of the relevant interactions is developed in-depth, using illustrations from industry. In addition, the lecture describes safety-oriented hardware development processes including the architectural constraints, documentation requirements and development procedures on hardware safety integrity.

ISO 26262 presents a new approach to hardware assessment and requires an evaluation of the residual risk of violating a safety goal due to failure associated with hardware element single-point, residual, and plausible multiple faults. Under consideration of the FMEDA methodology, required safety demonstration methods and the calculation of the Single-Point fault metric and Latent fault metric are presented. In this analysis, coverage of safety mechanisms is considered. The workshop provides a unique FMEDA-Workbench database tool developed exclusively by TÜV NORD according to the reliability standard IEC 62380. A laptop with Microsoft Excel is required.

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Day 4: Software Level Implementation of ISO 26262

Safety Oriented Software Development

Beyond the demands of previously existing quality standards like SPICE or CMMI, ISO 26262 establishes further software-related requirements focused on Functional Safety. The workshop presents the additional demands including the relevant techniques and measures corresponding to the relevant ASIL made on software development and their practical implementation in an illustrative manner. It is a briefing for all SW oriented personnel including those dealing with the validation of tools and applying COTS. Beginning with the management process for safety software development, a concrete example to the necessary requirement specification will be worked out. Examples of architectures will be discussed related to projects and general complier considerations explained. Each of the SW development phases will be discussed including specific requirements for implementation and testing. Validation activities and documentation features will be explained in detail according to the ISO 26262.

Day 5: Qualification Exam for Functional Safety Certified Automotive Engineer (FSCAE)

Interested participants can apply for the FSCAE qualification test. Attendance of all 4 workshops is a prerequisite. After successful completion of the test, TÜV NORD will provide FSCAE certification. The qualification is valid for 3 years and can be extended another three years after attending a follow-up workshop and successfully passing a repeated test. Further certification as a Functional Safety Certified Automotive Manager (FSCAM) can be achieved by individuals demonstrating work on relevant safety projects for at least the past 4 years and successfully passing a qualification audit by TÜV NORD. For more information, please refer to our flyer „Personal Certification“