



SOFTWARE INTENSIVE SYSTEMS

Obtain your personal certification in ISO 26262

Functional safety training for automotive professionals

Within UL Solutions, we provide a broad portfolio of offerings to many industries. This includes certification, testing, inspection, assessment, verification and consulting services. In order to protect and prevent any conflict of interest, perception of conflict of interest and protection of both our brand and our customers' brands, UL Solutions has processes in place to identify and manage any potential conflicts of interest and maintain the impartiality of our conformity assessment services.

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This four-day training is designed for engineers, developers and managers seeking to apply ISO 26262 to their safety-related automotive electronics programs. The training starts with an overview of functional safety and the ISO 26262 framework for safe development of automotive electronics. Then, the full 12-part ISO 26262 standard is described in detail, including safety management, concept and system development, hardware, software and supporting processes. Learners will work on exercises designed to teach the key concepts of functional safety in automotive hardware, software and systems. A wide range of specific technical examples are used to illustrate important points.

Contents

- Overview and scope of ISO 26262:2018
- Management of functional safety
 - Tailoring of safety activities
 - Safety culture
 - Confirmation measures, audit and assessment processes
- Concept phase
 - Hazard analysis and risk assessment (HARA)
 - Assigning safety goals and automotive safety integrity level (ASIL) ratings
 - Functional safety concept (FSC)
- System-level development
 - Technical safety concept (TSC)
 - System and item integration and testing
 - Safety validation
 - Hardware-software interface (HSI) specification
- Hardware development
 - Safety requirements and design
 - Hardware architectural metrics, including types of faults and diagnostic coverage
 - Hardware testing
- Software development
 - Safety requirements and design
 - Software architecture
 - Software unit and integration testing
 - Qualification of software components
- Production, operation, service and decommissioning
 - Preproduction planning requirements
 - Manufacturing-related functional safety topics
 - Service and user manual guidelines
- Supporting processes
 - Criteria for coexistence of elements
 - ASIL decomposition
 - Analysis of dependent failures
 - Confidence in software tools
 - Proven in use

Optional UL Certification Functional Safety Professional Exam

Participants who complete all four days of training are eligible to take a two-hour certification exam on the morning of the fifth day. Those who pass the exam are individually certified as a UL Certified Functional Safety Professional (UL-CFSP) in Automotive.

Upon the successful completion of the UL-CFSP exam, participants will receive a certificate and badge that they can use to demonstrate their competence in automotive functional safety. The certification is good for three years, after which individuals may recertify.



Objectives

- Understand the fundamentals of functional safety concepts, principles and standards
- Establish and integrate functional safety management into the entire value chain
- Conduct hazard identification and risk assessment for automotive systems
- Determine safety goals and ASILs, including the application of ASIL decomposition in different phases of the development
- Perform qualitative and quantitative safety analysis techniques, such as fault tree analysis (FTA), failure mode and effects analysis (FMEA) and failure modes, effects and diagnostic analysis (FMEDA) throughout the development process
- Evaluate quantitative hardware metrics, including single point fault metric (SPFM), latent fault metric (LFM) and probabilistic metric for random hardware failures (PMHF)
- Define a software development process in accordance with required ASIL

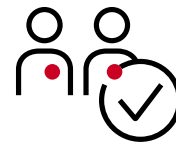
- Develop test plans and specifications to verify and validate safety of automotive electronics
- Establish a safety case to facilitate functional safety assessment and certification

Intended audience

- Engineers, developers, project leaders, quality managers and testing personnel who are developing embedded automotive systems based on ISO 26262
- Leaders of organizations involved in engineering development of automotive electronic systems, hardware, software and processes
- Automotive industry professionals seeking a better understanding of functional safety of automotive electronic systems and the ISO 26262 standard
- Safety and quality professionals responsible for ISO 26262 compliance

Why choose UL Solutions?

UL Solutions' global network of technical experts and state-of-the-art facilities, along with our long-standing relationships with partner laboratories and industry technical leaders, helps manufacturers gain the confidence they need to compete in a more complex global supply chain.



Knowledge you can trust

Our experienced staff will support you from the initial design stage of product development through testing and production. Our experts can assist you in understanding the certification requirements for your specific markets.



Speed and efficiency

Our cost-effective systems and state-of-the-art facilities cut through the red tape and help accelerate your time to market.



Single-source provider

UL Solutions helps you meet all of your compliance needs and, by bundling safety, performance and interoperability services, can also help save you valuable time and money.



Global reach and access

Our global network of expert engineers helps you understand the various national and global requirements for your specific market application.



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