Professional functional safety engineer training

Build automotive functional safety competency to meet the demands of regulatory compliance

Benefits
- Enable your company's processes and safety management to comply with the latest automotive international standards

- Prepare your organization for the autonomous market boom

- Increase your employees' value by providing training in safety analysis methods and standards

- Enhance product safety development with training services in ADAS and SOTIF concepts, system loss analysis, HARA, etc.

- Promote confidence in the market with certified automotive engineers

- Eliminate reliance on expensive certification bodies and accelerate time-to-market by becoming self-sufficient in ISO 26262

Summary
Our training services, which are part of the Xcelerator™ portfolio, the comprehensive and integrated portfolio of software and services from Siemens Digital Industries Software, enable customers to focus on complying with the latest industrial safety processes and standards.

The need for functional safety competence to meet the needs of International Organization of Standardization (ISO) 26262 has grown at an explosive rate due to the increasing level of electronics and software across vehicle safety and advanced driver assistance systems (ADAS). Original equipment manufacturers (OEMs) and ADAS system suppliers need to understand what it means to operate within a safe and secure automotive market. That means navigating the ever-changing regulatory landscape as governing bodies across the globe scramble to establish new standards.

The U.S. National Highway Traffic Safety Administration (NHTSA) creates safe vehicle guidelines, while the European New Car Assessment Programme (Euro NCAP) is an agency focused on vehicle safety ratings. The United Nations Economic Commission for Europe (UNECE) develops testing regulations for a multitude of ADAS systems while the

National Conference of State Legislatures (NCSL) adopts new ADAS testing laws across the U.S. Thus, implementing a successful ISO 26262 process can be quite complicated.

Your employees need to understand the massive collection of regulations, requirements and standards and be aware of how to implement these constraints for vehicle certifications. Most important is the need to understand functional safety requirements and provide the evidence to protect your business.

Siemens' extensive knowledge of safety standards enables our trainers to educate your company in multiple safety tasks. Our professional training helps your engineers implement safety lifecycle processes, safety analysis and system loss analysis along with concepts for safety.

Course curriculum outline

Safe organizations align with international standards and regulations
Transforming global safety begins with the organization, senior management and engineering. Siemens training is based on the needs of the organization and offers two certification courses. The three-day course covers all the necessary knowledge to advance your functional safety needs. Our five-day course goes to the next level by providing more in-depth coverage, how to write requirements training, a broad outline of Safety of the Intended Functionality (SOTIF) concept and the autonomous market and an overview of international regulatory organizations.
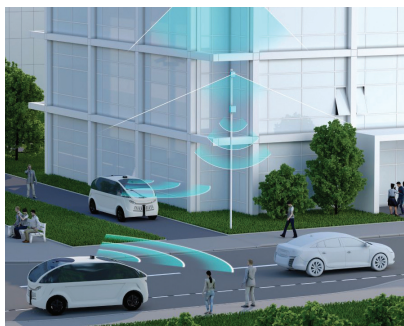
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Siemens will teach you how to develop hazards, starting with loss analysis, safety concepts, SOTIF and system hazard analysis and risk assessment. We will work through hardware, software, supporting processes and safety beyond item development. We use several exercises to enforce what we teach. Siemens safety training uses a comprehensive set of training skills to make any organization ready for compliance.

Functional safety management
Functional safety management is an essential foundation for safety development. Training highlights the different aspects of functional safety management and the organization's responsibilities and safety after development. We outline how to make an organization compliant, discuss management's responsibilities, examine proper project management practices and employ supporting processes.

Concept and system-level development
The training explores automotive safety integrity levels (ASIL) and required work products for implementation, development and processes. We outline the safety lifecycle and the development of the item. We will develop a hazard analysis and risk assessment, a safety concept, the technical safety requirements at the system level and the application of safety mechanisms.

Hardware-level development
Hardware training in safety includes systematic and random hardware failures: For instance, we cover how hardware

architectural metrics use failure mode and effect analysis (FMEA) for possible hardware failures by studying single-point faults (SPF), residual faults (RF) and multi-point faults (MPF). We continue with hardware analysis with fault tree analysis (FTA), probability metrics for random hardware failure (PMHF) and diagnostic analysis.

Software-level development
Software training in safety includes topics covering the techniques and measures that include software design, architecture, unit level, integration, testing and verification methods. Cybersecurity covers malicious intent external to the electrical and electronic (E/E) system.

Five-day training
The five-day training covers the three-day training material, but with more exercises and topics. We include a requirements writing course, qualification of software components, verification reviews, software verification analysis, supporting process and a discussion about regulatory bodies like the UNECE, U.S. Department of Transportation (DOT), NCAP and more.
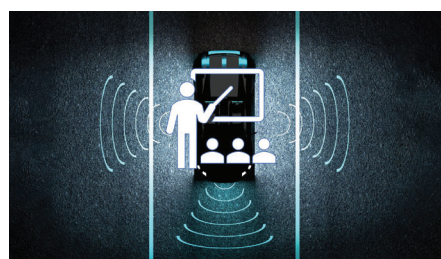
Professional certification
After completing the training, students can take a three-hour online certification test. Participants pass by answering more than 60 percent of the questions correctly and will receive a Professional Functional Safety Engineer Automotive - PFSEA certificate. The PFSEA logo can be printed on your business card and displayed in official correspondence.

Prerequisites
- Support of senior management and key expert participation
- Commitment to ISO 26262 transformation, streamlining and the need for action

Course costs
There is the possibility of in-person, instructor-led training as well as online training through our instructional learning portal. Call for rates:
- Certified three-day ISO 26262 instructor-led training
- Certified five-day ISO 26262 instructor-led training
- Group training

For more information, please contact safety.plm@siemens.com or the services manager in your country.

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