Obtain your personal certification in IEC 61508

Functional safety training for all industries developing safety-related electrical systems

Course overview

This three-day course is designed for engineers, developers and managers seeking to successfully apply IEC 61508 to their safety-related electrical systems. IEC 61508 is the base functional safety standard for various industries including process, nuclear, machinery, among others. The training starts with an overview of functional safety and the IEC 61508 framework for safe development of safety-related electronics. Then the full seven-part IEC 61508 standard is described in detail, including all aspects of safety management, concept and system development, hardware, software and supporting processes. Attendees will work on exercises designed to teach the key concepts of functional safety in electronic hardware, software and systems. A wide range of specific technical examples are used to illustrate important points. This comprehensive course covers all requirements of *IEC 61508:2010*.

Training topics

- Overview of functional safety and scope of IEC 61508:2010
- Management of functional safety
  - Coordination and responsibilities
  - Safety culture
  - Functional safety assessments
- Concept and requirements
  - Hazard and risk analysis
  - Overall safety requirements
  - E/E/PE system safety requirements specification
- E/E/PE system realization phase
  - Safety requirements and design
  - Avoidance and control of systematic faults
  - Hardware quantitative metrics, including types of faults, diagnostic coverage, PFD, PFH and SFF values
  - E/E/PE system design and development

- Software realization phase
  - E/E/PE software safety lifecycle
  - Software safety requirements specification
  - Software design and development
  - Software architecture
  - Software verification and module testing
  - Software tool qualification
- Commissioning, validation and operation
  - Installation and commissioning
  - Safety validation
  - Operation, maintenance and repair

Optional UL Certified Functional Safety Professional Exam

Participants who complete all three days of training are eligible to take a two-hour certification exam on the morning of the fourth day. Those who pass the exam are individually certified as a *UL Certified Functional Safety Professional* in IEC 61508 or *UL-CFSP*.

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 IEC 61508 functional safety. The certification is good for three years, after which individuals may recertify.

Objectives
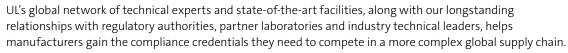
Upon completion of this training, you will be able to:
- Understand the fundamentals of functional safety: concepts, scope, principles and related standards
- Establish and integrate functional safety management in the entire value chain
- Conduct hazard identification and risk assessment for safety-related electrical systems
- Determine Safety Integrity Levels (SIL), including the application of SIL product development and verification
- Perform qualitative and quantitative safety analysis (techniques such as FTA, FMEA and FMEDA) throughout the development process
- Evaluate quantitative hardware analysis including PFD, PFH and SFF
- Define a software development process in accordance with the required SIL
- Develop test plans and specifications to verify and validate the safety of safety-related electrical systems
- Establish the necessary documentation facilitate a functional safety assessment

Target audience

- Engineers, developers, project leaders, quality managers and testing personnel who are developing safety-related electrical systems based on IEC 61508
- Leaders of organizations involved in engineering development of electronic systems, hardware, software, and processes
- Industry professionals seeking a better understanding of functional safety of electronic systems and the IEC 61508 standard
- Safety and quality professionals responsible for IEC 61508 compliance

Why choose UL?

From materials testing to supply chain management, new energy options to security and interoperability solutions, leverage our expertise and insights to navigate the global regulatory landscape and bring your products to market.

UL's global network of technical experts and state-of-the-art facilities, along with our longstanding relationships with regulatory authorities, partner laboratories and industry technical leaders, helps manufacturers gain the compliance credentials 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 meets all of your compliance needs and, by bundling safety, performance and interoperability services, also helps 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.

For more information, call 1.864.630.5373, email kvasales@UL.com, or visit kvausa.com.

Empowering Trust®

UL and the UL logo are trademarks of UL LLC © 2020.
CT25999170-0220