

TUV SUD Process Safety Certification Program (US-TUVPSE1A)

Type

Instructor-led Learning

Duration and Continuing Education Units (CEU)

3.5 Days

2.6 CEUs

Target Group

- Engineers
- Programmers

Short Description

This course is for process safety system design managers, project and safety managers, system, hardware and software developers, system integrators and designers.

The objective of this course is to relate the safety concept of IEC 61508 and cover the main principles for Functional Safety. IEC 61511 is covered by demonstrating safety principles according to these standards and how they relate to IEC 61508.

Objectives

- Identify Safety instrumented functions (SIF) and LOPA
- Define functional safety management and Life Cycle
- Define the required documentation
- Determine the basic architectures
- Implement measures to avoid and control failures, diagnostics
- Define verification and validation activities
- Determine SIL levels
- Monitoring the program sequence
- Configure data communication

Content

- Introduction to safety and overview on standards
- Hazard and Risk analysis (H&RA)
- SIS and BPCS
- Safety instrumented functions (SIF) and LOPA
- Functional safety management and Life Cycle
- Modification process
- Required documentation
- Basic architectures

- Measures to avoid and control failures, diagnostics
- FMEDA on system and component level
- SIL, HFT, PFD, PFH, DC, CCF/ β -factor and SFF calculation
- Verification and validation activities
- Determination of SIL
- Software lifecycle
- V-Model
- Measures to avoid systematic failures
- Self tests (RAM-, ROM- and CPU-tests)
- Program sequence monitoring
- Data communication
- Coding-rules (MISRA)
- Examples and exercises

Language

English

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