Course description

T145 Plus
IEC 61511 Functional Safety Appreciation and Awareness – Beyond the Basics

Course goal

The goal of this course is to provide an End User/EPC perspective of the detailed management, design and operational requirements of Functional Safety according to IEC 61508 / IEC 61511. 'T145 Plus' provides additional detailed information on the functional safety requirements based on the standard introductory course T145. This extension to standard T145 will appeal to people who require more than the general awareness and understanding of the contents of the safety standards.

Topics

The following topics will be covered by a series of interactive presentations and worked examples:

– Refresher of the functional safety lifecycle including IEC 61511 edition 2 new requirements
– Allocation of safety requirements to protection layers - LOPA method
– Safety requirements specification – Detailed requirements explanations
– SIS Design and key deliverables
– Selection of devices and supporting documentation for safety applications
– SIL verification example
– SIS operation and maintenance
– Highly managed alarms
– What an Asset Owner shall deliver to the EPC/Systems Integrator?
– The EPC/Systems Integrator lifecycle management responsibilities

Learning objectives

Upon completion of this course, the participants should be able to:

– Understand the detailed requirements of Functional Safety and features of IEC 61508 / IEC 61511 beyond the basic awareness & appreciation
– Understand the LOPA methodology
– Understand SIL verification calculation and the SIL achievement process
– Know the meaning of the SRS requirements
– Know the criteria for selection of devices for safety application
– Understand the detailed requirements for SIS operation, maintenance and modification

Participant profile

This training is targeted to Asset Owner/End User and Engineering Contractors/EPC stakeholder managers, project engineers, process engineers, safety engineers, operations managers, electrical, control, instrumentation, maintenance and operation staff who require detailed information on the functional safety standards and the underpinning requirements for compliance.

This course is designed for participants who may have already completed standard T145 functional safety training offered by ABB.

Course type and duration

This is an instructor led course with classroom discussions, quizzs and practical examples. The course content can also be delivered on-site to meet any specific Client requirements.

Course duration

The duration is 2 days. The course is available to be delivered in both English, and Polish languages. Please see the current ‘Open’ course schedule.
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Course outline

Day 1

- Refresher of the safety lifecycle activities including new IEC 61511 edition 2 requirements
- Allocation of safety requirements to protection layers - LOPA method
- Technical Quiz
- Safety requirements Specification – requirements explanations
- SIS Design and key life cycle deliverables
- Selection of devices for safety application
- What documents a device manufacturer should deliver
- Technical Quiz

Day 2

- SIL verification worked example
- SIS operation (where to find the information, actions to be taken on the detection of a fault, SIF bypassing, physical and software security)
- Technical Quiz
- SIS maintenance (inspection, proof test and test result analysis)
- Highly managed alarms
- EPC/Systems Integrator responsibilities - documentation and what an Asset Owner should deliver to the EPC/System Integrator
- Technical Quiz

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