Course description

IEC 61508 / 61511 Safety Integrity Level (SIL) Determination

Course Goal
This 2 day practical course, offered by ABB Consulting in partnership with ABB Training Center, Singapore, gives an understanding of the requirements for and the key steps in determining Safety Integrity Levels (SILs).

Introduction
From the IEC 61508 / 61511 standards, the Safety Integrity Level (SIL) is fundamental in ensuring a safety related system satisfactorily performs the required safety functions under all stated conditions within a defined time period.

It is an assessment of the risk reduction required to give a tolerable level of risk. Inappropriate SIL determination can affect the safety integrity of the asset protection envelope and may in some cases place the asset integrity under threat. In addition to this, unnecessary spend in capital and operational budgets can be incurred. In contrast, properly defined SILs allow for significant cost improvements to be achieved in both Greenfield and Brownfield operating environments. Asset operational effectiveness is ensured by periodic testing of safety instrumented functions to maintain SIL performance and optimize the cost of ownership.

Who Should Attend?
This course is intended for process industry engineers and managers who have responsibility or accountability for their approach to SIL determination or are involved in carrying out SIL determination.

Benefits
This course will be of benefit to all managers and engineers with a responsibility for the management and technical requirements of Safety, Health and Environmental protective programmes.

Learning Objectives
On completion participants should be able to:
- Understand the concepts of SIL determination and the principles of IEC 61508 / 61511
- Explain the key terms and concepts which underpin a systematic consideration process for safety and protective system in respect to SIL
- Understand the importance of SIL determination
- Determine where present practice is in line with the requirements of these standards and identify where improvements are necessary
- Implement the SIL determination methodology

Course Leaders
Alan King, a Hazard and Reliability Specialist for ABB Consulting, is responsible for technical leadership in hazard and risk quantification, leadership of hazard study and other techniques for hazard identification within process plant design control systems and instrumented protective systems.
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Course outline

Day 1
- Introduction
- Overview of IEC 61508 / 61511
- Key terms and concepts
- Risk and criteria
- Hazard identification
- Risk graph and other tools
- Summary and conclusions

Day 2
- Review of Day 1
- Introduction to demand trees and fault trees
- Equipment failure and data
- Human error
- Dependency
- Comparison of SIL determination tools
- The CASS scheme and future issues
- Review and feedback

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