IEC 61511 SIL Determination

A practical two day training course in the appreciation of SIL Determination to the technical requirements of IEC 61511.

17th - 18th June 2020 - Warrington, ABB Office
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Industry today relies upon safety systems to maintain and protect operating assets. Businesses seek to maintain operating effectiveness and reduce spurious trips whilst achieving a safety target appropriate to the circumstances. Fundamental to this process is the determination and implementation of the safety requirements for the safety system. From the IEC 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 optimise the cost of ownership.

Duration: 2 days

Price
Member of IChemE - £1160 + VAT
Non-Member - £1220 + VAT

Benefits
The 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.

The course
On completion of the course, you should be able to:
- Understand the concepts of SIL determination and the principles of IEC 61511
- Explain the key terms and concepts which underpin a systematic consideration process for safety and protective systems 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 structure and content
- A two-day technical course aimed at responsible managers and engineers
- Introduction to the standards and their background
- Scope and applicability
- Functional safety and IEC 61511 interpretation
- IEC 61511 basic principles refresher
- The concept and importance of SIL determination
- Risk concepts and criteria, risk aversion, tolerability including an exercise
- Hazard identification, assessing frequency and consequence, modification list including an example
- Risk graph approach with practical exercises
- LOPA use with exercise examples
- Fault trees and demand trees using further practical exercises
- The impact of humans in the equation and sources of fault tree data
- Dependency demands, layers etc. including a short exercise
- The ‘pros and cons’ of the differing approaches to SIL determination
- Introduction to the CASS scheme

**Course leader**
Gaynor Woodford-Phillips is a Senior Consultant for ABB. Gaynor is a Fellow of the Institute of Chemical Engineers with over 25 years’ experience in project design, operations support and line management in the petrochemical and chemical industries. Gaynor specialises in technical process safety which includes carrying out target SIL assessments, quantified risk assessments (QRA) and consequence modelling.

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**Day one agenda** - 09:30 to 17:00

| Registration and coffee |
| Introduction |
| Overview of IEC 61511 |
| Key terms and concepts |
| Risk and criteria |
| Hazard identification |
| Risk graph and other tools |
| Summary and conclusions |
| Close |

**Day two agenda** - 08:30 to 16:00

| 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 |
| Close |

*ABB reserve the right to amend the course agenda.*

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**How to book**

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