

## SIL Determination Workshop for Process Integrity

This 2 day workshop is intended to take participants through the fundamental principles of process hazard identification (HAZID, HAZAN and HAZOP) and SIL determination risk assessment using such methods as Layer of Protection Analysis (LOPA), Risk Graphs and Fault Tree Analysis (FTA) in line with the international IEC 61508 and IEC 61511 standards.

### Who should attend?

Process engineers, safety engineers and instrument engineers involved with maintaining the process safety, asset or environmental integrity of process plant, or with the development of safety instrumented systems for process plant protection.

### The objectives of the workshop are to equip participants with:

- The concept of identifying process related hazards.
- Hazard analysis by causes, deviations and consequences.
- The use of the formal guideword and parameter techniques for hazard analysis.
- An understanding of the concept and objectives of risk assessment.
- The analysis of safety, asset and environmental risk.
- Qualitative and quantitative methods of risk assessment.
- An understanding of the differences between risk prevention and risk mitigation.
- An understanding of the ALARP principles.
- Setting tolerable risk targets
- Hands on experience with different risk assessment methods.
- Basic concepts of Fault Tree Analysis (FTA) for SIL determination.
- Risk graphs and risk matrices.
- Risk graph calibration.
- The principles of Layer of Protection Analysis (LOPA).
- Calibration of LOPA risk assessment for different consequences.
- Analysis of cause events and likelihood data.
- Cause and consequence scenarios.
- Independent protection layers and associated rules.
- An understanding of the differences between risk prevention and risk mitigation.
- Assigning values to risk reduction layers.
- Safety, Asset and environmental conditional modifiers.
- Avoiding common cause issues (double dipping).
- An ability to participate in LOPA risk assessments.

The workshop will use numerous practical examples and team exercises drawn from real life experience to stimulate a realistic hazard and risk assessment experience. The LOPA methodology will be based on *'Layer of Protection Analysis Simplified Risk Analysis; American Institution of Chemical Engineering ISBN 0-8169-0811-7.*

**Strathayr, Rhu-Na-Haven Road, Aboyne, AB34 5JB, Aberdeenshire, U.K.**

**Tel: +44 (0)1339 886618**

[www.silsupport.com](http://www.silsupport.com)